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(19,241.)

# SUPREME COURT OF THE UNITED STATES

## OCTOBER TERM, 1904.

## No. 192.

CIMIOTTI UNHAIRING COMPANY AND JOHN W. SUTTON, PETITIONERS,

*vs.*

AMERICAN FUR REFINING COMPANY AND MAX MISCHKE.

ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE THIRD CIRCUIT.

INDEX.


| | Original. | Print. |
|---|---|---|
| Caption | a | 1 |
| Transcript from the circuit court of the United States for the district of New Jersey | 1 | 1 |
| Bill of complaint | 1 | 1 |
| Answer | 6 | 6 |
| Replication | 11 | 9 |
| Notice of final hearing | 12 | 10 |
| Evidence for complainants in chief | 13 | 11 |
| Admissions | 13 | 11 |
| Offers of patents and stipulations as to same | 13 | 11 |
| Testimony of Max Mischke | 13 | 11 |
| Gustav Cimiotti | 35 | 32 |


JUDD & DETWEILER, PRINTERS, WASHINGTON, D. C., JULY 15, 1904.

| | Original. | Print |
|---|---|---|
| Evidence for complainants in rebuttal | 80 | 73 |
| Testimony of Charles E. Foster | 80 | 73 |
| Exhibit Foster's Marked Drawing of Lake Patent | 115a | 103 |
| Exhibit Foster's Measurements of Cam Y of Lake Patent | 118a | 106 |
| Testimony of Irving M. Townsend | 160 | 142 |
| Daniel McLean Shaw | 161 | 143 |
| Complainants rest | 166 | 148 |
| Letters patent No. 383,258 to J. W. Sutton, May 22, 1888 | 167 | 149 |
| No. 195,826 to Joseph Kokesch, October 2, 1877 | 168 | 156 |
| No. 200,518 to Davies and Lambert, Feb. 19, 1878 | 169 | 158 |
| No. 213,735 to Sam'l D. Castle, April 1, 1879 | 170 | 162 |
| No. 213,736 to Sam'l D. Castle, April 1, 1879 | 171 | 164 |
| No. 217,291 to F. Lambert, July 8, 1879 | 172 | 166 |
| No. 240,007 to G. and F. F. Cimiotti, Apr. 12, 1881 | 173 | 168 |
| No. 306,185 to Simonson and Schott, Oct. 7, 1884 | 174 | 172 |
| Complainants' Exhibit Mischke Drawing No. 1 | 175 | 176 |
| Complainants' Exhibit Mischke Drawing No. 2 | 175 | 176 |
| Letters patent No. 233,415 to House and Castle, Oct. 19, 1880 | 176 | 177 |
| No. 243,152 to D. Mueller, June 21, 1881 | 177 | 180 |
| No. 275,077 to T. Rasmus, April 3, 1883 | 178 | 187 |
| No. 304,992 to H. W. Covert, September 9, 1884 | 179 | 198 |
| No. 536,742 to J. W. Sutton, April 2, 1895 | 180 | 201 |
| No. 618,625 to J. W. Sutton, January 31, 1899 | 181 | 209 |
| English patent No. 2836 to Wm. Robert Lake, June 28, 1881 | 182 | 216 |
| Opinion of Archbald, J., February 12, 1903 | 183 | 220 |
| Interlocutory decree, February 21, 1903 | 190 | 226 |
| Assignment of errors | 193 | 228 |
| Bond on appeal | 194 | 229 |
| Petition for appeal | 199 | 234 |
| Order allowing appeal | 199 | 234 |
| Citation | 200 | 234 |
| Clerk's certificate | 201 | 235 |
| Order taking cause under advisement | 202 | 235 |
| Opinion of Buffington, J | 202 | 236 |
| Decree | 212 | 242 |
| Order for mandate to issue | 213 | 242 |
| Mandate | 214 | 243 |
| Cost bill | 217 | 246 |
| Clerk's certificate | 218 | 246 |
| Writ of certiorari | 219 | 246 |
| Stipulation as to return to writ of certiorari | 222 | 247 |
| Return to writ of certiorari | 224 | 248 |

a *Transcript of Record.*

United States Circuit Court of Appeals for the Third Circuit,
—— Term.

AMERICAN FUR REFINING COMPANY and MAX MISCHKE, Appellants,
*vs.*
CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON, Appellees.
} No. —.

On appeal from the circuit court of the United States for the district of New Jersey.

1 Circuit Court of the United States for the District of New Jersey. In Equity.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON
*vs.*
AMERICAN FUR REFINING COMPANY, CHARLES A. WATSON, George W. Frayne, and Max Mischke.

*Bill of Complaint.*

(Filed June 11, 1901.)

To the honorable the judges of the circuit court of the United States for the district of New Jersey:

Cimiotti Unhairing Company, a corporation organized and existing under the laws of the State of New York and having its principal place of business in the city of New York, in the southern district of New York, and John W. Sutton, a citizen of the State of New York, bring this their bill of complaint against the American Fur Refining Company, a corporation organized and existing under the laws of the State of New Jersey, and having its principal place of business at No. 26 Morris street, Jersey City, in the district of New Jersey, Charles A. Watson and George W. Frayne, both citizens of the State of New York, residing in the city of New York, in said State of New York, and Max Mischke, a citizen of the State of New Jersey, residing at No. 26 Morris street, Jersey City, in the district of New Jersey; and thereupon your orators complain and say:

That heretofore and before the 22nd day of May, 1888, said John W. Sutton, being then a citizen of the United States, was the true, original and first inventor or discoverer of a certain new and useful invention or improvement in machines for plucking furs, which invention is more fully described in the letters patent hereinafter men-

tioned and which had not been known or used before his said invention, and which, at the time of his application for a patent, as hereinafter mentioned, had not been for more than two years in public use, or on sale, and had not been patented or described in any printed publication in this or any foreign country before his said invention or discovery thereof.

2 And your orators, on information and belief, further show unto your honors that said John W. Sutton, being so as aforesaid the first inventor and discoverer of said improvements, and being also a citizen of the United States, did, on the 22nd day of May, 1888, upon due application therefor, obtain letters patent of the United States for said invention, in due form of law, under the seal of the Patent Office of the United States, signed by the Secretary of the Interior and countersigned by the Commissioner of Patents of the United States, bearing date the day and year last aforesaid, and numbered No. 383,258, whereby there was granted and secured to said John W. Sutton, his heirs, administrators, assigns, or intended so to be, for the term of seventeen years from and after the date of said letters patent, the full and exclusive right and liberty of making, constructing, using and vending to others to be used, the said invention and improvements, as set forth in said letters patent, which are now remaining on record in the Patent Office of the United States; and by virtue whereof said John W. Sutton became and now is the sole owner of all the rights and privileges granted and secured, or intended to be granted and secured, in and by said letters patent, as by said letters patent, or a duly certified copy thereof here in court to be produced, will fully and at large appear.

And your orators further show unto your honors, that thereafter and on or about the 1st day of January, 1897, said John W. Sutton, by a certain instrument in writing, duly executed and recorded in the Patent Office of the United States, granted to your orator The Cimiotti Unhairing Company the exclusive right to manufacture, use and sell, subject to the conditions therein recited, machines made in accordance with said letters patent No. 383,258, and that said license is not revoked, and is still in full force and effect, as by the original, or a certified copy of said license here in court to be produced, will fully and at large appear.

And your orators further show unto your honors that by virtue of the premises John W. Sutton became and now is the sole and exclusive owner of said letters patent, and the said Cimiotti Unhairing Company became and now is the sole and exclusive licensee under said letters patent and the inventions and improvements described therein, and of all the rights and privileges granted and secured or intended to be granted and secured thereby; and that since they became the owners thereof as aforesaid they have invested and expended large sums of money and have been to great trouble

3 in and about said invention and for the purpose of carrying on the business of clipping or unhairing furs and making the same profitable to themselves and useful to the public, and that

said invention has been and is of great benefit and advantage, and that large numbers of furs were clipped or unhaired upon machines which were made according to said invention, to the great advantage of the public, and that the public have generally acknowledged and acquiesced in the aforesaid rights of your orators, and your orators believe that they will realize and receive large gains and profits therefrom if infringements by said defendants and their confederates shall be prevented.

And your orators further show unto your honors, upon information and belief, that the said defendants Charles A. Watson, George W. Frayne and Max Mischke are directors and stockholders of the said defendant American Fur Refining Company and are engaged jointly with it in the infringements hereinafter complained of, and are conspiring with it and its other officers and directors, and with other persons to your orators unknown, in the infringements hereinafter complained of; that the machines used and employed by the said defendant American Fur Refining Company at its said place of business, No. 26 Morris street, Jersey City, were constructed, built and set up by the said Max Mischke; that the said defendants Watson, Frayne and Mischke have individually and together induced, aided and procured the infringement of your orators' rights by the said defendant American Fur Refining Company, as hereinafter set forth, for the purpose of making profit to themselves individually as well as to the said American Fur Refining Company, whereof they are directors and stockholders, and have made and diverted, and, unless restrained by the order and injunction of this court, will continue to make and divert, from these complainants large profits, which have accrued and will accrue to them and to the said American Fur Refining Company, to the great loss and damage of your orators, but how much exactly your orators are not informed and cannot tell, and pray that the defendants may account therefor before a master to be appointed by this honorable court.

Yet the said defendants, well knowing the premises and the rights secured to your orators aforesaid, but contriving to injure your orators and to deprive them of the benefits and advantages which might and otherwise would accrue unto them from said invention,

4 after the issuance of said letters patent and the granting of said license, as aforesaid, and before the commencement of this suit, did, as your orators are informed and believe, without the license or allowance and against the will of your orators and in violation of their rights and in infringement of the aforesaid letters patent and exclusive license thereunder, unlawfully and wrongfully and in defiance of the rights of your orators, jointly make, construct and use the said invention, and did jointly make, construct and use, within the district of New Jersey, and elsewhere, machines made according to and employing and containing said invention, and that they still continue so to do, and that they are threatening to make the aforesaid machines in large quantities and unlawfully to use the same for the purpose of clipping and unhairing furs.

All in defiance of the rights acquired by and secured to your orators as aforesaid, and to their great and irreparable loss and injury, and by which they have been and still are being deprived of great gains and profits which they might and otherwise would have obtained, but which have been received and enjoyed and are being received and enjoyed by the said defendants by and through their aforesaid unlawful acts and doings.

And your orators further show unto your honors, on information and belief, that said defendants have clipped large quantities of fur skins upon said machines and have a large quantity of skins on hand which they are getting ready to clip, and have made and realized large profits and advantages therefrom, but to what extent and how much exactly your orators do not know, and pray a discovery thereof. And your orators say that the use of the said invention by said defendants and their preparation for and avowed determination to continue the same, and their other aforesaid unlawful acts, in disregard and defiance of the rights of your orators, have the effect to and do encourage and induce others to venture to infringe said patent, in disregard of your orators' rights.

And your orators further show unto your honors, that they have caused notice to be given to said defendants of said infringements and of the rights of your orators in the premises and requested them to desist and refrain therefrom, but they have disregarded said notice and refused to desist from said infringements, and still continue to make and use said machines.

And forasmuch as your orators can have no adequate relief except in this court, to the end, therefore, that the said defendants may, if they can, show why your orators should not have the relief hereby prayed, and may, according to their best and utmost knowledge, remembrance, information and belief, but not upon oath (an answer upon oath being hereby expressly waived), full, true, direct and perfect answers make in the premises and to all the several matters hereinbefore stated and charged, as fully and particularly as if severally and separately interrogated as to each and every of said matters, and may be compelled to account for and pay to your orators the profits by them acquired and the damages suffered by your orators from the aforesaid unlawful acts:

Your orators therefore pray that said defendants, American Fur Refining Company, Charles A. Watson, George W. Frayne and Max Mischke, they and each of them, and their and each of their servants, agents, attorneys and workmen, and each and every of them, may be restrained and enjoined, provisionally and perpetually, by the order and injunction of this honorable court, from directly or indirectly making, constructing, using, vending, delivering, working or putting into practice, operation or use, or in any way counterfeiting, or imitating the said invention, or any part thereof, or any machine made in accordance therewith or like or similar to those which they have heretofore made, or any machine containing the combination of (1) a stretcher-bar; (2) means for intermittently

feeding a pelt over the stretcher-bar; (3) a guard device on one side of the stretcher-bar; (4) a rotary separating brush on the other side of the stretcher-bar; and (5) mechanism for causing the rotary separating brush to brush the fur downward from the working edge of the stretcher-bar on to the off-side thereof, that is, on to the side toward which the pelt is fed; and that the said defendants may be decreed to pay the costs of this suit; and that your orators may have such further relief or such other relief as to this honorable court shall seem meet and as shall be agreeable to equity.

May it please your honors to grant unto your orators the writ of injunction, as well provisional as perpetual, issuing out of and under the seal of this honorable court commanding, enjoining and restraining the said defendants, American Fur Refining Company, Charles A. Watson, George W. Frayne and Max Mischke, their and each of their servants, agents, attorneys and workmen, and each and every of them, as is hereinbefore in that behalf prayed.

May it please your honors to grant unto your orators the writ of subpœna issuing out of and under the seal of this honorable court,
6 directed to the said defendants, American Fur Refining Company, Charles A. Watson, George W. Frayne and Max Mischke, commanding them by a certain day and under a certain penalty to be and appear in this honorable court, then and there to answer the premises and to stand to and abide such order and decree as may be made against them.

And your orators will ever pray, &c.

CIMIOTTI UNHAIRING CO.
GUSTAV CIMIOTTI, *Pres.*

LOUIS C. RAEGENER,
*Complainants' Solicitor and of Counsel.*

UNITED STATES OF AMERICA,
*Southern District of New York, County of New York,* } *ss:*

On this 10th day of June, 1901, before me personally appeared Gustav Cimiotti, president of The Cimiotti Unhairing Company, one of the above-named complainants, who, being by me duly sworn, deposes and says: That he has read the foregoing bill of complaint subscribed by him and knows the contents thereof, and that the same is true of his own knowledge, except as to the matters therein stated to be alleged on information and belief, and as to those matters he believes it to be true.

[L. S.]

EUGENE N. ROBINSON,
*Notary Public, N. Y. County.*

Circuit Court of the United States for the District of New Jersey.
In Equity.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON
vs.
AMERICAN FUR REFINING COMPANY, CHARLES A. WATSON, George W. Frayne, and Max Mischke.

*Answer.*

(Filed August 5, 1901.)

The joint and separate answer of The American Fur Refining Company and Max Mischke, the defendants herein, to the bill of complaint of The Cimiotti Unhairing Company and John W. Sutton, complainant-.

7 These defendants, now and at all times having and reserving unto themselves all benefits and advantages of exception which can or may be had or taken to the manifold errors and uncertainties and to the other imperfections in the said bill of complaint herein contained, for answer thereto or unto so much of said bill of complaint as the defendants are advised are material for them to answer unto, say as follows:

The defendants have no knowledge except by the bill of complaint herein, that The Cimiotti Unhairing Company, one of the complainants herein, is a corporation organized and existing under the laws of the State of New York and having its principal place of business in the city of New York; and that John W. Sutton, the other complainant, is a citizen of the State of New York.

The defendants have no knowledge, except by the bill of complaint herein, that the complainant, John W. Sutton, did, as alleged in the bill of complaint, make an application for letters patent of the United States, and that on the 22nd day of May, 1888, letters patent of United States No. 383,258 were issued to him for certain improvements in machines for plucking furs and that the said John W. Sutton on or about the first day of January, 1897, by a certain instrument in writing, duly executed and recorded in the Patent Office of the United States, granted to the complainant, The Cimiotti Unhairing Co., the exclusive right to manufacture, use and sell, subject to the conditions therein recited, machines made in accordance with the said letters patent No. 383,258, and that said license is not revoked and is still in full force and effect; and they leave it to the complainants to make proof of these allegations as best they can.

Defendants deny that by said letters patent, No. 383,258, granted as alleged to the complainant Sutton on the 22nd day of May, 1888, there was granted and secured to the said John W. Sutton, his heirs,

administrators and assigns, or intended so to be, for the term of 17 years from and after the date of said letters patent, the full and exclusive right and liberty of making, constructing, and using or vending to others to be used, such fur plucking or unhairing machines as are used by the defendant corporation, The American Fur Refining Co., or of any machine containing the combination of (1) a stretcher-bar; (2) means for intermittently feeding a pelt over the stretcher-bar; (3) a guard device on one side of the stretcher-bar; (4) a rotary separating brush on the other side of the stretcher-bar; and (5) mechanism for causing the rotary separating brush
8 to brush the fur downward from the working edge of the stretcher-bar on to the off side thereof, that is, on to the side toward which the pelt is fed.

Defendants deny that they are engaged jointly in the infringement of the said letters patent, No. 383,258, granted to the complainant, John W. Sutton, on the 22nd day of May, 1888, as alleged in the bill of complaint, and that they are conspiring with the defendant's corporation and its officials and directors, and with other persons, in the infringement as alleged in the bill of complaint, and that they did since the issue of the said letters patent, and the granting of the licenses as afore mentioned, and before the commencement of the suit, jointly make, construct and use within the district of New Jersey and elsewhere, machines made according to and employing and containing the alleged invention set forth and claimed in the letters patent, No. 383,258, as aforesaid; that they still continue to do so, and that they are threatening to make such machines, infringing the patent aforesaid in large quantities, and to unlawfully use the same for plucking or unhairing furs.

The defendants further answering the bill of complaint herein, say upon information and belief, that the machines constructed by the defendant, Max Mischke, and used by the defendant, The American Fur Refining Company, for plucking or unhairing of furs, do not contain the improvements set forth or claimed in the said letters patent, No. 383,258, granted to the complainant, John W. Sutton, May 22, 1888, or any substantial or material part thereof, the said machines being constructed according to a prior letters patent of Great Britain, to Robert William Lake, June 28, 1881, No. 2836, duly sealed and published on or about the 8th day of October, 1881, and which letters patent, as these defendants are informed and verily believe, expired, and the improvements set forth therein, became public property on or about the 28th day of June, 1886, or thereabout.

The defendants further answering the bill of complaint herein, allege on information and belief, that the letters patent of United States, No. 383,258, granted May 22nd, 1888, to the complainant John W. Sutton, and referred to in the bill of complaint herein, are invalid and void by reason that the alleged improvements set forth and claimed therein as the invention of the complainant, John W.

Sutton, were known, used and practiced prior to the alleged
9 invention or discovery thereof, by the said complainant, John W. Sutton, and therefore not patentable at the time of their alleged invention by the said complainant.

And the defendants further answering the bill of complaint herein, say on information and belief that the letters patent of United States No. 383,258, referred to in the bill of complaint herein, are invalid and void by reason that in view of what was known, used and practised in the art prior to the alleged invention of the complainant, John W. Sutton, the devising, making, constructing and using of such machines for plucking furs as set forth and claimed in the said letters patent, numbered and dated as aforesaid, did not in the sense of the law, amount to an invention, and did not involve more than the skill of a mechanic familiar with the prior art.

The defendants further answering the bill of complaint herein, allege upon information and belief that the letters patent of United States, No. 383,258, referred to in the bill of complaint, are invalid and void by reason that the description of the alleged invention as set forth in the specification of the said letters patent, is incomplete and ambiguous in that it does not set forth the alleged invention and the manner and process of making, constructing and using the alleged improvements in such full, clear, concise and exact terms as to enable any person skilled in the art to which they appertain, to make, construct and use the same.

Wherefore, the defendants having answered as fully to the bill of complaint herein and to so much of it as they are advised is material and necessary for them to be answered unto, and having shown that complainants are not entitled to the relief prayed for in the said bill of complaint, or to any relief whatever, pray the same advantage of their answer, as if they had pleaded or demurred to the said bill of complaint, and they pray to be hence dismissed with their costs and reasonable charges, in this behalf most wrongfully sustained.

THE AMERICAN FUR REFINING CO.,
[L. S.] By GEO. W. FRAYNE,
*Secretary and Treasurer.*

MAX MISCHKE.

JAMES WESTERVELT,
*Solicitor for D'f't.*
HENRY SCHREITER, *Of Counsel.*

10 UNITED STATES OF AMERICA, } ss:
*City and County of New York,* }

On this 26th day of July, 1901, personally appeared George W. Frayne, and made oath that he is the secretary and treasurer of The American Fur Refining Company, one of the defendants, in the above entitled cause, that the name affixed to the foregoing answer is the

corporate name of the said company and was affixed thereto by authority of said company, that he, the affiant, signed the said answer, as such secretary and treasurer, by like authority, and affixed the corporate seal thereto; that he has read the foregoing answer and knows the contents thereof and that the same is true as to his knowledge, except as to those matters and things stated on information and belief, and as to those matters and things, he believes them to be true.

GEO. W. FRAYNE.

Sworn and subscribed to before me, this 26th day of July, 1901.
[L. S.] ALBERT E. HARTCORN,
*Notary Public, Kings County.*

Certificate filed in New York county.

UNITED STATES OF AMERICA, *City and County of New York,* } ss:

On this 26th day of July, 1901, before me at New York, personally appeared Max Mischke, and he made oath that he is the Max Mischke, one of the defendants in the above entitled cause, that he has read the foregoing answer and knows the contents thereof, and that the same is true as to his own knowledge, except as to those matters stated to be alleged on information and belief, and that as to those matters he believes it to be true.

MAX MISCHKE.

Sworn to and subscribed before me, this 26th day of July, 1901.
[L. S.] ALBERT E. HARTCORN,
*Notary Public, Kings County.*

Certificate filed in New York county.

11 Circuit Court of the United States, District of New Jersey.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON
*vs.*
AMERICAN FUR REFINING COMPANY, CHARLES A. Watson, George W. Frayne, and Max Mischke. } In Equity.

*Replication.*

(Filed October 7, 1901.)

The replication of Cimiotti Unhairing Company and John W. Sutton, complainants, to the answer of American Fur Refining Company and Max Mischke, defendants.

These repliants saving and reserving unto themselves now and at all times hereafter, all and all manner of benefit and advantages of

exception which may be had or taken to the manifold insufficiencies of the said answer, for replication thereunto say that they will aver, maintain and prove their said bill of complaint to be true, certain and sufficient in law to be answered unto, and that the said answer of the said defendants is uncertain, untrue and insufficient to be replied unto by these repliants. Without this that any other matter or thing whatsoever in the said answer contained, material or effectual in the law to be replied unto, and not herein and hereby well and sufficiently replied unto, confessed or avoided, traversed or denied is true. All which matters and things these repliants are and will be ready to aver, maintain and prove as this honorable court shall direct, and humbly pray as in and by their said bill they have already prayed.

LOUIS C. RAEGENER,
*Solicitor for Complainants*, 141 *Broadway*,
*New York City, N. Y.*

12 United States Circuit Court, District of New Jersey.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON
vs.
AMERICAN FUR REFINING COMPANY, CHARLES A. Watson, George W. Frayne, and Max Mischke. } In Equity.

*Notice of Final Hearing.*

(Filed March 5, 1902.)

Please take notice that under the order entered in the above entitled cause on the 20th day of February, 1902, defendants shall not take any proofs, and said cause will be brought on for final hearing upon the pleadings, proofs and proceedings herein before the judges of this honorable court, at a stated term thereof, to be held at the United States post office building in the city of Trenton, on the fourth Tuesday in March of this year, to wit, the 25th day of March, 1902, at the opening of the court on that day, or as soon thereafter as counsel can be heard.

Dated, March 4, 1902.

Yours, etc.,

SCHREITER & MATHEWS,
*Solicitors for Defendants, No.* 20 *Nassau Street*,
*New York City.*

To the clerk of U. S. circuit court, Trenton, New Jersey.

To Mr. Louis C. Raegener, solicitor for complainants, No. 141 Broadway, New York city.

Due and timely notice of a copy of the within notice is hereby admitted

LOUIS C. RAEGENER,
*Solicitor for Complainants.*

13 Circuit Court of the United States for the District of New Jersey. In Equity.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON
*vs.*
AMERICAN FUR REFINING COMPANY, CHARLES A. WATSON, George W. Frayne, and Max Mischke.

*Complainants' Proofs.*

(Filed April 2, 1902.)

Testimony taken on behalf of complainants at the office of Dickerson, Brown & Raegener, 141 Broadway, New York city, Nov. 12, 1901, at 11 a. m., before H. D. Oliphant, Esq., examiner.

Present: Louis C. Raegener, Esq., of counsel for complainants; Henry Schreiter, Esq., of counsel for defendants.

It is admitted that the Cimiotti Unhairing Company is a corporation organized under the laws of the State of New York, and that The American Fur Refining Company, the defendant, is a corporation organized under the laws of the State of New Jersey.

Complainants' counsel offers in evidence U. S. letters patent No. 383,258, of May 22, 1888, to John W. Sutton, for a machine for plucking furs; and it is stipulated that printed copies of this and all other United States letters patent be accepted with the same force and effect as though certified, and that printed copies of foreign patents are also to be admitted in evidence with the same force as if certified, subject, however, to correction during the time of taking of the testimony.

MAX MISCHKE, a witness called on behalf of the complainants, having first been duly sworn, in answer to questions put to him by Mr. Raegener, testifies:

Q. 1. What is your name, age, residence and occupation?

A. Max Mischke; age, twenty-six; residence, 245 St. Paul's avenue, Jersey City; occupation, machinist.

Q. 2. Are you a director of the defendant corporation?

A. Yes.

Q. 3. Where is the place of business and the workshop of the defendant corporation?

A. 26 Morris St., Jersey City.

14 Q. 4. Since when has that corporation been at that shop?

A. Since April 1901.

Q. 5. What is its business?

A. Unhairing of coney skins.

Q. 6. You are the foreman and superintendent in charge of that shop?

A. Yes.

Q. 7. How many unhairing machines has the defendant corporation at the said shop at the present time?

A. Twenty-five.

Q. 8. How long has it had twenty-five?

A. That I could not say.

Q. 9. Why couldn't you say it?

A. Because they were built one after the other.

Q. 10. Are the machines all alike?

A. Exactly.

Q. 11. I show you a photograph which was taken in your presence and in the presence of counsel for both parties a few weeks ago. Is this a photograph of one of the twenty-five machines at the defendants' shop?

A. I think so.

Q. 12. You helped to put that machine on the box on which it stands, did you not?

A. When it was taken there.

Q. 13. You helped to carry that machine from near the window in defendants' shop and helped to place it on that case, did you not?

A. Yes.

Q. 14. Are the twenty-five machines at the defendants' shop like the machine shown in this photograph?

A. Yes.

Q. 15. Do the twenty-five machines operate like the machine of the photograph?

A. Yes, if that is the machine, of course.

Q. 16. Have they all the same kind of wire brushes?

A. Yes; but the one that was on that was not fit to be used. I told you that before they took the picture.

Q. 17. Why was it not fit to be used?

A. Because some of the bristles were worn away in the center of the brush.

Photograph offered in evidence as "Complainants' Exhibit Photograph of Complainants' Exhibit Defendants' Machine."

Defendants' counsel objects to the introduction in evidence of this photograph under the name "Complainants' Exhibit Photograph of Complainants' Exhibit Defendants' Machine," on the ground that according to the stipulation entered into by the solicitors for the respective parties it was agreed that the machine delivered by defendants' solicitors in the custody of the complainants' counsel was to be introduced in evidence as "Defendants' Exhibit Defendants' Machine."

15 Complainants' counsel further offers in evidence the machine shown in the photograph and asks that it be marked "Complainants' Exhibit Defendants' Machine."

Complainants' counsel further states that it is true that the stipulation refered to by counsel does say that the machine shall be offered in evidence as "defendants' exhibit," but he thinks that it is utterly immaterial by whatsoever name this machine may be known. If it is an advantage to the defendants to have it appear that they offered this machine then the defendants may have that advantage. In the meantime complainants are taking testimony and need this exhibit.

Defendants' counsel objects to the introduction in evidence of the machine "Complainants' Exhibit Defendants' Machine," on the ground that the machine is not at present identified and in fact not in court, and therefore cannot be at this stage of the proceedings introduced in evidence or marked as a- exhibit.

Q. 18. Please state the names of your co-directors in the defendant corporation.

A. Mr. Charles A. Watson, Mr. George W. Frayne and myself.

Q. 19. State the names of the officers of the corporation.

A. Charles A. Watson is president and George W. Frayne is secretary and treasurer.

Q. 20. Where does Mr. Frayne live?

A. In Melrose, New York city.

Q. 21. Where does Mr. Watson live?

A. In Brooklyn.

Q. 22. Before you became the foreman of the defendant corporation you were the foreman of the American Unhairing Machine Co.?

A. Yes.

Q. 23. Where did this company have its factory?

A. At 186 Wooster St., New York city.

Q. 24. And before that?

A. Before that, I think, at 145 Spring St., New York city.

Q. 25. How man- unhairing machines did that company operate?

A. Twenty-six.

Q. 26. Who built them?

A. My father, Karl Mischke.

Q. 27. His place of business is at 237 Centre St., New York city?

A. Yes.

Q. 28. These machines unhaired coney pelts?

A. Yes.

Q. 29. You helped to build some of them, did you not?

A. Some of the first ones.

16 Q. 30. The complainants in this suit obtained an injunction against these machines?

A. Yes.

Q. 31. And the business of the American Unhairing Co. has been disbanded, has it not?

A. Yes.

Q. 32. Some of its machines have been sent to the defendant corporation, have they not?

A. No.

Q. 33. Did the defendant corporation buy any of the machinery or machines of the American Unhairing Machine Co.?

A. No.

Q. 35. What is the value of one of these twenty-six machines at 26 Morris St.?

A. I couldn't really say how much they cost to build.

Q. 36. Much more than $100?

A. No.

Q. 37. About $125 would be a fair price?

A. I couldn't tell you exactly.

Q. 38. Who built them?

A. I did.

Q. 39. How long have you been in the business of building machines and machery?

A. Ever since I left school.

Q. 40. How many years ago was that?

A. Since I was twelve years of age.

Q. 41. Has the defendant corporation in its possession any machines which heretofore were in the possession of the American Unhairing Machine Co.?

A. They have three Lake machines that were operated in 93 Elizabeth St.

Complainants' counsel objects to the impertinent statement by this witness that certain machines are Lake machines. The court's attention is called to the plain question whether the present defendant corporation has in its possession any machines heretofore belonging to or owned by the American Unhairing Machine Co.

Q. 42. Mr. Witness, you have heard my objection. I therefore repeat my question, Has the defendant corporation in its possession any machines of any kind whatever heretofore the property of the American Unhairing Machine Co.?

A. They have three Lake machines that were operated at 93 Elizabeth St.

Complainants' counsel moves to strike out the statement that they are Lake machines, on the ground that it is a falsehood and a lie, and in addition to that a gratuitous impertinence on the part of the witness.

Defendants' counsel objects to the insulting behavior of complainants' counsel and serves notice on him that if this conduct on
17 his part will continue he will withdraw from the proceedings and insist that the testimony of any witness be taken in the presence of the examiner in court.

Adjourned to 2 o'clock.

Examination continued.

Q. 43. About how long are the wire bristles on the brushes on the defendants' machines?

A. About nine-sixteenths of an inch.

Q. 44. And about how long is the hair and fur on a coney pelt?

A. They are of different lengths; some of them about an inch, some three-quarters, some five-eights, some about seven-sixteenths to one-half of an inch.

Q. 45. The brushes on all these twenty-six machines are adjustable, are they not?

A. Well, no; they can be made adjustable.

Q. 46. Well, you can set them higher or lower, can't you?

A. Yes. I can set them higher or lower.

Q. 47. Just look at the photograph put in evidence and you will observe a part sticking up on top of the machine and underneath it you will observe four holes made.

A. Yes.

Q. 48. The hole on the photograph, which is white, is the one in which the axis of the brush rests, is it not?

A. No.

Q. 49. In which axis is the brush?

A. Way down here. (Witness points to the photograph.)

Q. 50. About how much higher or lower can you set the brush than it is set in the machine shown in the photograph?

A. I could not set it down more than about three-sixteenths of an inch lower.

Q. 51. In these machines the stretcher-bar moves to the brush?

A. Yes, back and forth from the knife to the brush.

Q. 52. What does the brush do to the fur on the stretcher-bar?

A. It makes a parting.

Q. 53. Anything else?

A. Separates—disentangle the water hairs from the fur.

Q. 54. What does it do, separate or disentangle?

A. Separate.

Q. 55. As a matter of fact there is no disentanglement of fur and hair, is there, in a coney skin?

A. Yes, there is.

Q. 56. Then does the brush occasionally disentange fur and hair in a coney pelt?

A. It always does.

Q. 57. At what angle is the stretcher-bar presented to the brush?

A. Almost at right-angles.

18 Q. 58. How many contacts are made between the brush and the stretcher-bar in a minute?

A. About 130.

Q. 59. How quick does the brush revolve?

A. That I couldn't say.

Q. 60. Rapidly?

A. Yes.

Q. 61. In defendants' machines there is a stretcher-bar, is there not?

A Yes.

Q. 62. And it is a knife-edge or sharp stretcher-bar, is it not?
A. Yes, slightly rounded.
Q. 63. Rounded about the shape of the finger?
A. Not as thick as a finger.
Q. 64. There is an intermittent feed of the pelts, is there not?
A. Yes.
Q. 65. There are means for intermittently feeding the pelt?
A. Yes.
Q. 66. There is a guard device on the on-side—the side from which the pelt is fed—is there not?
A. Yes.
Q. 67. Does the stretcher-bar on its way from the knives to the brush descend under the brush?
A. No.
Q. 68. What does it do with respect to the brush?
A. When it leaves the knife and goes back to its furthest point it is in contact with the brush immediately.
Q. 69. And when the stretcher-bar leaves the brush to go back to the knives does it ascend then?
A. It rises immediately as it moves forward towards the knives.
Q. 70. How much does it rise?
A. Three-sixteenths of an inch about.
Q. 71. To what is this rise of about three-sixteenths of an inch of the stretcher-bar in its passage from the brush to the knives due?
A. To the motion of the cam.
Q. 72. What is the circumference of the wire cylindrical brush?
A. About 6½ inches.
Q. 73. Suppose we draw a vertical line through that cylinder so that there are 3¼ inches on each side of it. Now, I ask you to state whether the stretcher-bar on its passage from the knives to this cylinder passes underneath the cylinder beyond the bisecting line?
A. Beyond the bi-secting line?
Q. 74. Yes, beyond the bi-secting line.
A. It does not pass beyond the bi-secting line.
Q. 75. I now present to you a cylinder which is supposed to represent the outer circumference of the brush in the defendants'
19 machine, and ask you with this pen to indicate at about what point the stretcher-bar on its passage from the knives to that cylinder contacts with it?
A. I have done so and the line by me marked X indicates the stretcher bar where it contacts with the cylinder.

The sketch offered in evidence as "Complainants' Exhibit Mischke Drawing No. 1, Nov. 12, 1901."

Q. 76. Which way are the pelts fed in the defendants' machines, head foremost or tail foremost?
A. Head foremost.
Q. 77. What difference, if any is there between these twenty-five machines at the defendants' shop and the machines at Elizabeth St.,

New York? I mean those you and I saw in the early part of this year.

A. They are all alike, with the exception that on two of the machines on Elizabeth St. the outline of the plate was a little different; but the dimensions were alike.

Q. 78. I believe you called those machines which you got from the American Unhairing Machine Company Lake machines. Are these twenty-five machines at the defendants' place also Lake machines?

A. Yes.

Q. 79. When you say they are Lake machines, that means, of course, that you know the Lake patent?

A. I do. I read the Lake patent and I know it.

Q. 80. You know in the Lake patent there are two brushes or brushing rolls shown, D and D'. Which of the two brushing rolls of the Lake patent are in these twenty-five defendants' machines?

A. The brush D'.

Q. 81. Your counsel has heretofore as expert in one of these suits testified that the brush D' of the Lake patent brushed the fur and hair on the stretcher-bar at right-angles to the working edge of the stretcher-bar. Does the brush D' in these twenty-five machines do that?

A. Almost.

Q. 82. When you say almost you mean, do you not, that the fur or fur and hair is brushed slightly below the working edge of the stretcher-bar, is it not?

A. Slightly—not quite an eighth of an inch. By that I mean the ends of the hair and fur.

Q. 83. The effect of this brushing down below the working edge of the stretcher-bar is to prevent the fur from being cut by the knives, is it not?

A. Yes.

Q. 84. Are you familiar with the hand process of unhairing pelts?

A. Well, I heard quite a good deal about it.

Q. 85. You never unhaired fur skins by hand, did you?

A. No, I did not.

20 Q. 86. Never saw anybody unhair them by hand, did you?

A. No.

Q. 87. Do the wire bristles of the defendants' machine brush down to the extent to which you have testified the fur and hair, or only the fur?

A. The fur and hair.

Q. 88. And what does the hair do?

A. The hair rises of its own resiliency when it leaves the brush.

Q. 89. In what year are you prepared to say that you commenced to know anything about machinery of any kind?

A. About 1891.

Q. 90. About how many pelts can one of these defendants' machines unhair in a day—in the usual working day?

A. That all depends on the size of the skin. Some we can do about sixteen dozen in a day of nine working hours.

Q. 91. How many machines can one boy or girl attend to at the same time?

A. Two.

Q. 92. What did the defendants charge for unhairing coney pelts?

A. $1.25 per dozen.

Q. 93. That has been the net price charged by the defendants?

A. Yes.

Q. 94. How many times is a pelt run through the machine before the defendant corporation considers it properly unhaired?

A. Once.

Q. 95. What other unhairing machines did you help to construct for various persons while you were a workman?

A. None. I repaired some.

Q. 96. For whom did you repair?

A. Max Blau.

Q. 97. Has the defendant corporation operated any other kind of machines than the twenty-five as to which you have testified?

A. No.

Q. 98. Are those the only machines—the aforesaid twenty-five—which the defendant corporation has operated since its existence?

A. Yes, sir.

Q. 99. Is the crank which swings the stretcher-bar from the knives to the brush in defendants' machines the same size in proportion to the other parts as the crank-arm shown in the Lake patent?

A. No.

Q. 100. What is the difference?

A. The difference is the omitted motion to the back brush D.

Q. 101. And how much is that difference in inches?

A. I never measured it.

Q. 102. Well, then, to that extent the so-called twenty-five Lake machines operated by the defendants are not like the Lake
21 machine of the Lake drawing?

A. They are with that exception.

Q. 103. Did you ever try to unhair pelts with a roll covered with teasels?

A. No.

Q. 104. Do you know what teasels are?

A. No, I do not think I do.

Q. 105. Did you make any effort to find out when reading this specification?

A. No.

Q. 106. Didn't think it was necessary?

A. No.

Q. 107. Did you ever see card-clothing such as that in the year 1881?

A. I don't remember ever seeing any. I don't know when it was manufactured.

Q. 108. Is the connecting-rod called F in the Lake specification the same connecting-rod on the defendants' machines?

A. The connecting-rod on the defendants' machine is longer than the one shown in the Lake drawing.

Q. 109. You notice the arm $X^2$ on the Lake drawing, do you not?

A. Yes.

Q. 110. That is straight, is it not?

A. Yes.

Q. 111. The corresponding arm on the so-called Lake machines, twenty-five of which are in the defendants' shop, is curved, is it not?

A. No.

Q. 112. It is certainly not straight?

A. The twenty-five are not curved. That one might have gotten bent; but this does not make a particle of difference. It doesn't interfere with the motion whatsoever.

Q. 113. You notice the eccentric in the Lake patent, C'. Do you mean to testify that the eccentric on the defendants' machines is of the same size in proportion as in the Lake drawing?

A. Yes.

Defendants' counsel objects to the testimony relating to the comparison of defendants' machines with the so-called Lake patent, on the ground that the Lake patent has not been introduced in evidence and it does not appear from the testimony what is meant by the Lake patent. The testimony, therefore, is unintelligible.

Complainants' counsel answers, if the Lake patent is never introduced in evidence, he is perfectly willing that the testimony shall forever after remain unintelligible; but inasmuch as the witness, against his protest, designated the defendants' machines as "Lake machines," it is necessary for complainants' counsel to ascertain what the witness means by Lake machines.

22 Q. 114. Now, looking at "Complainants' Exhibit Mischke Drawing No. 1," and assuming that there would be a D brush in the machine, do you mean to testify that a stretcher-bar would contact with the brush D' at the point shown in that exhibit and descend and run along under the brush D' in such a machine?

Defendants' counsel objects to that question as improper, the question being hypothetical, and the witness not having qualified as expert and having heretofore testified only to facts.

A. I do not understand the question at all.

Q. 115. You have heretofore built and exhibited an unhairing machine at Elizabeth St., in the city of New York, in the early part of this year that had two brushes, and you testified that the brushes

in that machine were respectively the D′ and the D brush of the Lake patent, and I understand your testimony to be here to-day that the twenty-five machines operated by the defendants are Lake machines built in accordance with the specification of the Lake patent, and that the only substantial difference between the Lake drawing and the machines is that in the defendants' machines there is only one brush D′. You have also testified that you are familiar with the Lake patent and you have built machines in accordance with it. I now ask you whether in a so-called Lake machine with two brushes D′ and D the point of contact between the stretcher-bar and the brush D′ on the path from the knives to the brush D would be as shown upon "Complainants' Exhibit Mischke Drawing No. 1"?

Defendants' counsel objects to the question on the ground that it contains various allegations not appearing from the record in this case, and on the ground that it is involved and unintelligible.

A. I could not answer that question.

Q. 116. You have built a Lake machine with two brushes, have you not?

A. Yes.

Q. 117. And the brush nearest to the knives, you and I know, is called D′?

A. Yes.

Q. 118. Now, in the Lake machine which you built with two brushes D and D′ did the stretcher-bar contact with D′ at the same point as the stretcher-bar does in this "Complainants' Exhibit Mischke Drawing No. 1?"

A. You will have to give me the back or the forward motion either way.

Q. 119. I repeat the preceding question and state on the
23 course from the knives to the brush D.

A. No, it cleared under the brush D′.

Q. 120. It did not touch it at all?

A. No.

Q. 121. But on the course back from the brush D to the knives it contacted, and will you please indicate on this same sheet of paper in what place.

Defendants' counsel objects to that question, on the ground that there is no evidence yet in the record, no one having testified whether the stretcher-bar on the way from the brush D to the knives contacts or not with the brush D′ of the Lake English patent. Defendants' counsel again calls attention to the fact that the Lake English patent is not introduced in evidence.

A. I have done so. It comes in contact at the line drawn by me marked X′ and it leaves it on the line drawn by me marked $X^2$.

The sketch is offered in evidence and marked "Complainants' Exhibit Mischke Drawing No. 2, Nov. 12, 1901."

Q. 122. Is there anything in the Lake patent which states that the stretcher-bar ascends after contact with D′ on its way to the knives?

A. Certainly.

Q. 123. I hand you the Lake patent and ask you to point it out.

A. I read from the specification as follows:

"The said bar is caused to vibrate from the fur-opening brushes at D and D′ and the cutters at E."

Q. 124. And in your opinion that statement in the Lake patent is your warrant for saying that the Lake patent instructs you that the stretcher-bar from D′ ascends to the knives E?

A. Not that alone. I worked out the movement of that cam myself and got the exact motion it makes as the machine travels forward and back from the knives to the brush D and back.

Q. 125. I have no doubt that you worked out the motion until you made an operative device; but what I ask you is where does the Lake specification state that the stretcher-bar on its way to the knives moves in this curvilinear path shown on the Mischke drawing No. 2?

Defendants' counsel objects to the question on the ground that the specification of the Lake patent is the best evidence on this point, and therefore it is not necessary to have any verbal testimony upon this point.

Complainants' counsel answers that he fully agrees with his distinguished friend, but *that* he has never said that any ma-
24 chine could be built according to the Lake patent, whereas the witness claims to have built machines.

A. The curved motions that are caused by the cam are so short that it appears to be nothing but a vibration when the machine is in operation, and if you will operate the machine slowly by hand you will observe that it makes a curved motion—a correct part of a circle.

Q. 126. Does it make as much of a curve as you have shown on that sketch of yours?

A. Yes; about seven-sixteenths of an inch in length.

Q. 127. Who told you which way the stretcher-bar moves?

A. Common sense.

Q. 128. Is there anything in the specification that states that in a two-brush Lake machine the stretcher-bar on its way from the knives first contacts with D′ or first escapes D′?

A. Yes, there is.

Q. 129. What?

A. I will read it to you. "When the two brushes are used as represented it is desirable that the fur should escape from the brush between the cutters and the other brush."

Q. 130. How long have you been in the business of building unhairing machines?

A. Ever since the American Unhairing Machine Company started in business—over two years.

Q. 131. George W. Frayne, one of the directors of this company, was also a director of the American Unhairing Machine Company, was he not?

A. Yes, as much I understand.

Q. 132. What work did he do for the American Unhairing Machine Company? Soliciting the work?

A. Yes.

Q. 133. He also solicits the work for the defendant corporation, does he not?

A. Yes.

Q. 134. Do you remember the time that these complainants sued your father?

A. Yes.

Q. 135. They got an injunction against him, did they not?

A. Yes.

Q. 136. For building unhairing machines?

A. Yes.

Q. 137. Alleged to be infringements of the Sutton patent?

A. Yes.

Cross-examination by Mr. SCHREITER:

X Q. 138. Who selected the machine referred to in Q. 17 in respect to which you testified that it was not fit to be used because the bristles of the brush were worn away in the *center*?

A. Mr. Raegener selected it.

25 X Q. 139. When you say Mr. Raegener you mean the counsel for complainants present here to-day?

A. Yes.

X Q. 140. When testifying about the machines operated by the American Unhairing Machine Company at 93 Elizabeth street, in the city of New York, and which were exhibited to the complainants in this case, you designated these machines as "Lake machines." Were those machines constructed according to the specification and drawings of the English patent to Lake, No. 2836, of June 28, 1881, which I now hand you?

A. Yes. Two of the machines were built exactly according to the drawings of the Lake patent furnished me by Mr. Searle, and the two other machines were built in accordance with the Lake patent, with the exception that the D brush was omitted and the back and forward motion of the stretcher-bar correspondingly shortened, it being a waste of power and time to have the stretcher-bar travel beyond the brush D′ and the brush D′ was slightly lowered—about three-eighths of an inch.

Defendants' counsel offers in evidence a printed copy of the specification and drawings of the Lake English patent No. 2836, of June

28, 1881, and the same is marked "Defendants' Exhibit Lake English Patent."

It is stipulated by and between counsel for the respective parties that the Lake English patent was published in the first week of October, 1881, and that it lapsed for non-payment of taxes on June 28, 1885.

X Q. 141. You also constructed according to the drawings and specification of the Lake English patent, a machine which is now introduced in evidence in the case of these same complainants against William A. Hulbert, pending in the United States circuit court for the southern district of New York, and which machine was referred to in those proceedings as the "Green Model" or "No. 4 Machine," did you not?

A. Yes, I built that machine.

X Q. 142. What was the object or purpose of constructing this "Green Model" machine?

Objected to by complainants' counsel, that the object and purpose of this witness in building machines of that kind are immaterial to this issue.

A. We built that "Green Model" machine in order to ascertain whether it would work or not, being that Mr. Benjamin, complainants' counsel, testified that it was not operative.

X Q. 143. Did you build the machine exactly according to the drawings and specification of the Lake English patent?

26 A. Yes; I built it exactly according to the drawings that were furnished me by Mr. Searle. I understand the specifications of the Lake patent thoroughly and built it exactly according to them to the best of my ability.

X Q. 144. Did you operate this machine after it was constructed?

A. Yes.

X Q. 145. Did it unhair skins?

A. Yes.

X Q. 146. Did it work satisfactorily?

A. Yes; in fact it worked very satisfactorily.

X Q. 147. Did you try to operate the machine with one intermediate brush designated D' in the drawing of the Lake English patent?

A. Yes, I did.

X Q. 148. Was the machine found capable of operating with only this one brush?

A. Yes, it operated much faster and produced still better work than with the original Lake machine built exactly according to the specification.

X Q. 149. Did you operate the "Green Model" machine with only the intermediate brush?

A. Yes, I did. That is what induced me to build a machine

with only one brush, because I found it worked much easier and could be operated more rapidly.

X Q. 150. The American Fur Refining Company bought the Lake machines operated by the American Unhairing Machine Company at 93 Elizabeth St. some time in the spring of 1901, did it not?

A. Yes.

X Q. 151. Are you operating these machines?

A. No, we are not using them.

X Q. 152. What was the purpose of buying those machines?

Objected to, as this witness is not competent to give evidence on this subject.

A. Simply to keep them out of other hands.

X Q. 153. Do you mean to say that the American Fur Refining Company bought the machines because it desired to prevent the machines being bought by some other concern?

A. Yes, certainly.

X Q. 154. Have you operated such Lake machines provided with bristle brushes?

A. Yes, I have.

X Q. 155. Have you also operated such Lake machines with card-clothing brushes?

A. Yes, I have.

X Q. 156. Did you find any difference in the operations of the machines when card-clothing brushes are used as compared with machines where bristle brushes are used?

27 A. I found that they came out much straighter and with a better lustre than with a bristle brush.

X Q. 157. When you say "I found that they came out much straighter" you mean fur skins unhaired on such machines?

A. Yes, I mean the skins that were unhaired on the machines.

Adjourned to Thursday, November 14th, at 11 a. m.

NEW YORK, *Nov.* 14, 1901.

Met pursuant to adjournment.

Present—Counsel as before.

Examination of the witness MAX MISCHKE resumed:

X Q. 158. The specification of the Lake English patent mentions both bristle and card-clothing brushes as suitable for separating of the water hairs from the fur, does it not?

A. Yes, it does.

X Q. 159. Why do you use card-clothing brushes in the machines operated by defendant corporation? Do you find them better or more efficient in the operation of the machines than bristle brushes?

A. We find that a card-clothing brush goes through the hair better than a bristle brush and allows the stiff hairs to slip out much more rapidly than a bristle brush, and it also does not burnish the water hairs li-e a bristle brush sometimes does, which causes them to lay down and consequently not to be cut off by the cutters.

X Q. 160. Did you observe in the operation of the Lake machines, wherein you used card-clothing brushes, that the card-clothing draws or tends to pull out the wool or fur of the pelt?

A. No, it does not pull out any wool or fur.

X Q. 161. Can you state approximately how many fur skins in all were unhaired on those machines constructed by you according to the Lake English patent since you became familiar with this patent and since you have constructed the first model machine mentioned in this testimony?

A. I could not say exactly; about forty thousand dozen.

X Q. 162. Can you state the percentage of fur skins that were spoiled in unhairing, if any?

A. Sometimes one or two or three out of one hundred dozen.

X Q. 163. Can you explain the cause of spoiling such skins? Is it due in your understanding to a defect in the construction of the machines disclosed in the English Lake patent or to other causes?

28 A. It is not due to the machine whatsoever. There is what we call "wild hair" in some skins, which is so stiff that it is impossible to keep it down beneath the surface of the knife. Consequently they are cut away.

X Q. 164. Does that happen in other machines too?

A. It happens in every machine that does unhairing. There is no machine built that could avoid cutting the wild hair out.

X Q. 165. You testify that you are familiar with the specifications and drawings of the Lake English patent, and you testify that you have constructed a machine designated here as the "Lake Model machine" according to drawings furnished you by Mr. Searle, a mechanical draughtsman. Will you kindly say of what nature those drawings were that were furnished you by Mr. Searle?

A. They were drawings of the Lake machine, one drawing with the machine complete and other detail drawings of all the parts of the machine, and when I started to build the machines I laid the drawings on the metal and punched along the outline with a center punch, thus giving me the exact outlines of all parts in the drawings that were furnished me.

X Q. 166. Did you compare the drawings furnished you by Mr. Searle with the drawings of the Lake English patent?

A. Yes; I made several enlarged drawings of the Lake English patent myself, and I found them exactly as mine.

X Q. 167. Did you find that the drawings furnished you by Mr. Searle were exactly like the drawings of the Lake English patent, except that they were made on larger scale?

A. Yes; they were exactly like it in every detail.

X Q. 168. Did you copy every detail or part of the Searle drawings in constructing that Lake model machine?

A. Yes, I did.

X Q. 169. I show you two photographs, which I ask you to examine and state whether you recognize what is represented on those photographs?

A. I recognize the photographs as representing the Lake model machine before it was painted. The machine is an exhibit in the suit against Hulbert and is in the clerk's office of the circuit court of the United States for the southern district of New York.

Defendants' counsel introduces the photographs identified by the witness in evidence, and the same are marked Defendants' Exhibits Photographs of Lake Model Machine, Nos. 1 and 2 respectively.

29 X Q. 170. Kindly indicate by an arrow on this Exhibit Photograph of Lake Model Machine No. 1 in what direction the shaft and cam and crank secured thereon rotate?

A. I have done so.

X Q. 171. You indicated in the photograph that the shaft and the cam and the crank secured thereon rotate from left to right, or, with other words, in the direction of the hands of a watch. Is that correct?

A. Yes, that is correct.

X Q. 172. You have testified that in a Lake machine like the one represented on the photographs now before you, where two brushes are used, the fur skin stretched on the edge of the stretcher-bar comes first in contact with the brush D. Please state what this brush does.

A. The brush D makes the part on the edge of the stretcher-bar, brushing the fur and hair down together.

X Q. 173. By the word "down" do you mean to say down from the working edge of the stretcher-bar to the off-side?

A. Yes.

X Q. 174. When the stretcher-bar moves away from the brush D the fur skin comes in contact with the intermediate brush D′, does it not?

A. Yes, it does.

X Q. 175. Please state what action the brush D′ has on the fur skin stretched over the edge of the stretcher-bar?

A. When the stretcher-bar leaves the brush D it goes to the brush D′ and describes a curved motion around part of the circumference of the brush D′. The brush D′ does the finishing. It brushes more on the edge of the stretcher-bar and sort of gives the hair more resiliency to spring up.

X Q. 176. Does it also brush the fur and hair down from the edge of the stretcher-bar to some extent?

Objected to as an immaterial, leading question.

A. Yes, it brushes the hair to the off-side of the stretcher-bar and down to some extent.

X Q. 177. The question related to both the hair and the fur. In your answer you speak only of hair. Please state whether the brush D′ brushes both the fur and hair down to the off-side of the stretcher-bar to some extent or only the hair.

A. It brushes the fur and hair to the off-side of the stretcher-bar.

These questions are objected to by complainants' counsel as leading, especially because witness has in the preceding answer testified that the alleged D′ brush did some finishing and that by that he meant that there was substantially no down brushing by this brush, and now counsel is apparently leading him to say something different.

30 X Q. 178. What did you mean by the word "finishing" used in one of your preceding answers with reference to the action of the brush D′?

A. The curved motion described by the stretcher-bar causes the brush D′ to give the fur skin a sort of sweeping motion, which gives the hair more resiliency and causes them to fly out of the wool more rapidly.

X Q. 179. When the intermediate brush D′ alone is used in a Lake machine does it perform the action of both brushes? I mean does it make the part as well as the action which you designate the "finishing"?

A. Yes.

X Q. 180. What is necessary to be done to make a machine constructed according to the Lake English patent, as you have testified, to operate with one brush only?

A. I lower the brush from about one-quarter to one-half an inch and shorten the back and forward motion of the stretcher-bar and slightly turn the cam forward, so that when the stretcher-bar first comes in contact with the brush it rises immediately.

X Q. 181. When you say "I lower the brush" which of the two brushes of the Lake machine do you mean?

A. The brush D′—the intermediate brush.

X Q. 182. Please explain how you shortened the back and forward motion of the stretcher-bar.

A. I simply used a longer connecting rod, which is connected with the crank on the main shaft of the machine to the swinging frame, and which also had two holes in it. I shortened the crank on the main shaft so as not to cause the stretcher-bar to make such a long motion.

X Q. 183. Can you state approximately how long a time it requires to make these changes from a two-brush to a one-brush machine constructed according to the Lake English patent?

A. About half an hour.

X Q. 184. Why is it necessary to set the intermediate brush lower when you want to use the machine with only one brush?

A. Because I find when I leave the intermediate brush in the same position as when I use both brushes it does not perform the work so clean as when I set the brush down to anywhere from one-fourth to one-half an inch.

X Q. 185. What do you understand by the word "clean" when describing the operation of the intermediate brush when used alone?

A. By the word "clean" I mean that all the water hairs are removed from the fur skin.

31 X Q. 186. Am I correct in understanding from your explanation that the reason why you set the intermediate brush D'lower in a machine when it is used alone is that this brush, when set lower, effects the separation of all water hairs from the fur, whereas if it remains in the position as it is when both brushes are used on the machine, some of the water hairs escape its action?

A. Yes, you are correct.

X Q. 187. I understood you to testify that in the defendants' machines constructed according to the Lake English patent you can adjust the bearings of these brushes to some extent. Will you kindly explain why the bearings of these brushes are made adjustable.

A. The bearings of the brushes are made adjustable to set the machine for thick or thin skins.

X Q. 188. Is it common in the art of constructing machines to make some parts adjustable?

A. It is practical in building any sort of a machine to make all parts adjustable, if possible, with the exception of moving parts.

X Q. 189. Why is it necessary to set the brushes differently for thick or thin skins?

A. If I had the machines set for thin skins and tried to do thick skins on them, the brushes would brush too hard and ruin the skins.

X Q. 190. When the brushes are once adjusted for either thick or thin skins are the bearings fixed to the side plates of the machine?

A. Yes. We have two screw holes in the bearing of the brushes and as soon as we have the brush set in the proper position both screws are fastened so as to make it impossible for the brush to get out of adjustment.

X Q. 191. Why do you change the position of the cam when you change the two-brush Lake machine to a one-brush Lake *machine*?

A. To make the stretcher-bar rise immediately.

Re-direct examination by Mr. RAEGENER:

R. D. Q. 192. Before testifying to-day you read the testimony heretofore given by you in the early part of this year in the suit between the same complaintants and William A. Hulbert, defendant?

A. I do not remember that I did.

R. D. Q. 193. Weren't parts of it shown to you?

A. No, not that I can say.

R. D. Q. 194. Heretofore you testified that in a so-called Lake machine with two brushes the D' brush brushed the fur below the

edge from one-eighth to three-sixteenths of an inch. As a matter of fact is that what the D′ brush does in a two-brush Lake machine?

A. Yes.

32 R. D. Q. 195. In the defendants' twenty-five machines, in which you use, as you state, only the D′ brush, have you also set that D′ brush lower from one-quarter to one-half of an inch, as you have just in answer to other questions testified should be done in a one-brush Lake machine?

A. Yes.

R. D. Q. 196. And in all of the twenty-five one-brush machines used by the defendant corporation this brush is set from one-quarter to one-half an inch lower than it should be set in a two-brush Lake machine?

A. Well, I mean from one-quarter of an inch to one-half an inch below the edge of the stretcher-bar.

R. D. Q. 197. With that qualification you answer yes?

A. Yes.

R. D. Q. 198. When the D′ brush is set lower the fur is brushed lower, is it not?

A. Yes.

R. D. Q. 199. And brushing the fur lower benefits the work, does it not?

A. Yes.

R. D. Q. 200. Can commercial unhairing be done in a so-called Lake machine such as you have built with the D′ brush alone set in the same position as in a two-brush Lake machine and without alterations or changes of any kind?

A. Yes. The only difference is that the work does not come out so clean and you cannot work the machine so rapidly.

R. D. Q. 201. And by clean you mean that a great many hairs would be left in the pelt?

A. Oh, not a great many, very few.

R. D. Q. 202. Some hair would be left in the pelt?

A. Yes, some hair.

R. D. Q. 203. In order to do the best commercial work in a so-called Lake machine with one brush—the so-called D′ brush—you found it necessary to set the brush lower, to set the cam differently and to shorten the crank-arm?

A. Yes, being that the cam is adjustable we could do it.

R. D. Q. 204. Does the Lake patent contain any statements that the cam is to be set differently, that the brush is to be lowered and that the crank-arm is to be shortened when the D brush is dispensed with?

A. No, not necessarily, but common sense would show to any half a machinist what to do.

Complainants' counsel says inasmuch as this witness has testified that some of the wire pins in the card-clothing on the brush of "Complainants' Exhibit Defendants' Machine" were bent or worn

out, from which undoubtedly some inference is to be drawn, complainants' counsel asks that at the expense of complainants he be furnished with a new brush in place of the old one, and that
33 the card-clothing on the old one in its worn and bent condition be preserved.

Defendants' counsel states that to his understanding the condition of the brush on the Exhibit "Defendants' Machine" is utterly immaterial for any purpose of this exhibit, and that he therefore prefers to have the exhibit selected by complainants preserved and produced in court in the state as it was, and therefore declines to comply with the request of complainants' counsel.

R. D. Q. 205. I saw the original shown in these photographs No. 1 and No. 2 at the Elizabeth Street shop, and you have testified that it was operated and that it unhaired coney pelts. That is so, is it not?

A. Yes, that is so.

R. D. Q. 206. Did you observe the operation of the brush farthest from the knives—the so-called D brush—in that machine?

A. I did.

R. D. Q. 207. Would it be possible to unhair pelts with that D brush alone in that machine.

A. Not in the position in which the D brush is set in that machine when two brushes are used.

R. D. Q. 208. Then you could unhair pelts on that machine shown in these photographs No. 1 and No. 2 with the D brush alone, if it were set differently, is that it?

A. I never made the experiment.

R. D. Q. 209. But set as it is in that machine and set properly, according to your statement, as it should be set in a two-brush Lake machine, it is impossible to unhair pelts with it without the coöperation of the D′ brush?

A. Exactly.

R. D. Q. 210. Now, if that D brush was dispensed with in that same machine shown in these photographs No. 1 and No. 2, set just as they are and shown on the photographs, would a machine with the brush D′ alone unhair pelts?

A. Yes.

R. D. Q. 211. Would that be commercial unhairing that the trade would be satisfied with?

A. If the profit satisfied the one that was operating the machines.

R. D. Q. 212. Do you mean to testify that good work could be done on this machine shown in photographs No. 1 and No. 2 with the brushes set just as they are, if the brush D was not used?

A. I say that the machine can unhair skins if the brush D is dispensed with and if the brush D′ is set in the same position or is left in the same position as when two brushes are used.

R. D. Q. 213. And you mean to testify that the machine would do such work as would satisfy the trade?

A. Yes; it wouldn't do it fast enough probably.

34 R. D. Q. 214. Would all the hair be removed from it?

A. Not all. There is not one skin unhaired that all the hair is removed.

R. D. Q. 215. Would the hair be removed from it as well as the hairs are removed by the twenty-five machines that you have?

A. No, not so well.

R. D. Q. 216. Why not?

A. That cannot be explained. Experiments only bring that out.

R. D. Q. 217. Then in order that there may be no misunderstanding between us, you mean to testify that if in the Lake model machine of which we have photographs No. 1 and No. 2 before us, the brush D were removed and there were no other modifications or alterations, pelts would not be unhaired upon it as well as upon defendants' one-brush Lake machine? Is that correct?

A. That is correct.

R. D. Q. 218. And the reason for this, you say you are not able to give?

A. No; I am not able to explain it. I know it myself. There are many things that you cannot understand.

R. D. Q. 219. Well, suppose you try to explain it.

A. I could explain it to any one that—well that has our method of unhairing or my idea of unhairing.

R. D. Q. 220. What is your idea of unhairing?

A. I mean my idea of setting the brush.

R. D. Q. 221. Then the material advantage that the twenty-five defendants' machines have over a Lake machine such as is shown in these photographs of the Lake Model machine No. 1 and No. 2, in which the brush D is dispensed with and no other change is made is due to the different setting of the D′ brush?

A. Not exactly. I could have the machine in working order and without making any change in the brush. Any one of Cimiotti's machinists could not set that machine.

R. D. Q. 222. What do you mean by that? Do you mean to say that the machine which we now have in our possession and which you delivered to us is set in *such a tricky* way that all the mechanics that we may employ will not discover the trick?

A. There is no trick whatso-ver. They simply do not know anything whatever about the machine.

R. D. Q. 223. And because they do not know anything about the machine, you take it that they cannot work it the way you work it, is that it?

A. Cimiotti's best machinist would probably be at it for some time before he would get familiar with that machine.

35 R. D. Q. 224. And what would he have to do with it after he got familiar with it after quite some time?

A. Get it to run right.

R. D. Q. 225. How would he make it run right?

A. He would have to use his best knowledge.

R. D. Q. 226. Then you mean to say that the Complainants' Exhibit Defendants' Machine," which is in my possession, cannot be run right by the ordinary mechanic.

A. I do not know what you call a mechanic.

R. D. Q. 227. You mean you do not understand my question?

A. I do not know what you call a mechanic.

R. D. Q. 228. You mean to say you do not understand my question?

A. I said I do not know what you call a mechanic.

R. D. Q. 229. I don't care what you say you said. I repeat the question. (Q. 226.)

A. I do not say that. With a certain amount of practice and knowledge of fur skins he can run it.

R. D. Q. 230. Now, I come back to the subject matter that I was inquiring about and ask you whether the advantage that the twenty-five defendants' machines with the D′ brush set from one-quarter to one-half an inch lower that that same brush is set in the machine of photographs of Lake model machine No. 1 and No. 2 has, over this Lake model machine shown in the photographs when the D brush is dispensed with, is or is not due to the lower setting of the D′ brush?

A. If there was no advantage in setting the brush lower we certainly would not do so.

R. D. Q. 231. I now show you "Complainants' Exhibit Photograph of Defendant's Machine" and likewise "Defendant's Exhibit Photograph of Lake Model Machine No. 1" and ask you to admit whether it is not a fact that the changes which you referred to in your testimony, to wit, the different setting of the cam and the difference in length of the crank-arm, do not appear from a comparison of these two photographs?

A. It does so appear.

Examination closed.

Signature waived.

Recess.

After recess.

GUSTAV CIMIOTTI, a witness called on behalf of complainants, having first been duly sworn, testifies as follows:

Q. 1. What is your name, age, residence and occupation?

36 A. Gustav Cimiotti; age, sixty; residing at 881 West End Ave., New York. I am the president of the Cimiotti Unhairing Company, whose place of business is at 55 & 57 West 3rd St., New York city.

Q. 2. You and your brother Ferdinand F. Cimiotti were the inventors of the first machine for unhairing pelts, is that so?

A. Yes, sir.

Q. 3. I show you U. S. letters patent No. 240,007, of April 12,

1881, and ask you whether that is the patent granted to you and your brother and so far as you know the first one in the art of unhairing?

A. Yes.

Patent offered in evidence and marked "Complainants' Exhibit Cimiotti Patent No. 240,007."

Defendants' counsel objects to the introduction of this exhibit and to all testimony relating thereto as *material*, irrelevant and incompetent.

Q. 4. C. M. Lampson & Co., of London, England, bought the foreign patents for the invention shown and described in this letters patent No. 240,007 and paid you and your brother $30,000 for the same?

A. Yes.

Same objection.

Q. 5. It is a fact, is it not, that from 1881 until about the year 1891 or 1892 you were the only concern in the United States of America that unhaired pelts by machinery, with the exception of Martin Bates, Jr., & Co., whom you licensed to operate the Rasmus machine?

A. Yes.

Q. 6. You granted a license to Martin Bates, Jr., & Co. about 1884 or thereabouts, which license continued for several years, and Martin Bates, Jr., & Co. paid you several thousand dollars in royalty, is that so?

A. Round about between 1884 and 1886, I think they paid us a license of several thousand dollars a year, of 22½ cents per seal skin, on the Rasmus machine.

Q. 7. And the Rasmus machine is an air blast machine?

A. Yes.

Q. 8. It was run by steam power?

A. It was a power air blast machine.

Q. 9. Before 1881 you and your brother were furriers?

A. Yes.

Q. 10. And before that time you unhaired fur skins by hand?

A. Yes, sir.

Q. 11. The hand operation of unhairing was usually performed by girls who stretched a pelt over the finger, blew on it, made some sort of a part, and with shears or scissors cut off the hairs?

37 A. Yes, sir.

Q. 12. The machines built in accordance with your letters patent No. 240,007 in the year 1881 are still in use at the present time, are they not?

A. Yes, sir.

Q. 13. You still unhair pelts upon them?

A. Yes.

Q. 14. The price that you obtained in 1881 and that you still obtain for unhairing a seal skin is $1 per skin?

A. Well, we have raised the price of seal skins to $1.25.

Q. 15. When?

A. This year, 1901.

Q. 16. But with that exception since 1881 you received $1 per skin?

A. Yes, sir.

Q. 17. Each machine built in accordance with patent No. 240,007 requires the attention of one operator?

A. One man to every machine.

Q. 18. In the unhairing of seal skins on these machines built in *accordance with patent No. 240,007* in the case of almost every pelt as it is fed over the stretcher-bar at some time or other an imperfect part is made, is it not?

A. In some skins, yes.

Q. 19. By an imperfect part you mean that some fur forms a loop on the part, which would be cut if the knives were put into action.

A. Yes, sir.

Q. 20. What does the operator do in such a case when an imperfect part is made?

A. Well, he has to make several attempts at it or else work it by hand with a pair of hand shears over those spots.

Q. 21. You mean to say he either destroys the part and makes a new one or else removes the hair with hand shears?

A. That is what I mean.

Defendant's counsel objects to this line of examination as entirely irrelevant, immaterial and incompetent for any purpose of this litigation, and he also objects to the leading form of questions.

Q. 22. How many seal skins can an operator in a working day unhair on machines built in accordance with patent 240,007?

A. About an average of eight skins per day.

Q. 23. How long did it take a skilled operator to remove hairs in the hand process?

A. Well, the hand process was imperfect at its best and a girl operator could not unhair a skin in less than a week's time, and then the work was not as perfect after that week of work on it as the machine can do it in an hour.

38 Q. 24. Coming now to the Sutton patent in suit, of May 22, 1888, No. 383,258, about when did you build the first machine in accordance with that patent?

A. The first machine was built by John W. Sutton, I should say, about in 1887, and after 1888, when he gave us the exclusive license to use his machine—I think it was in 1888 or 1889 that we built the first lot of machines.

Q. 25. Coming now to the first lot of machines built in accordance with the patent in suit, tell us how they were built.

A. They were built in strict accordance with the patent drawings, the same as the first machine built by John W. Sutton, which was used as a model to build the others.

Q. 26. How long did you use this first lot of machines built, as testified to in the last answer, before you put any improvements thereon?

A. I think we operated those machines in that condition with the exception of the wiper, which we removed, for three or four years. I cannot recollect exactly.

Q. 27. Sutton's subsequent patent—that is to say, the one that immediately succeeds the patent in suit—was applied for in 1894. Would that aid your memory in any way?

A. Well, I guess that will be about right.

Q. 28. Then do you mean to testify that up to about 1894 you used machines made in strict accordance with the patent drawings of the patent here in suit?

A. Yes, sir.

Q. 29. About how many coney pelts did you unhair on the machines thus constructed?

A. Oh, in the neighborhood of a million skins, I suppose.

Q. 30. At the time that you received this exclusive license from Mr. Sutton did you unhair some seal skins on Sutton's machine?

A. Well, we unhaired seal skins on the Sutton machine before we took the license. We took the license because we saw that that machine would unhair seals and we were afraid we might have a competitor who might do us harm, and therefore we took the license and agreed to pay him a royalty on every seal skin either done on his machine or on the air blast machine of six cents for every skin unhaired.

Q. 31. By the air blast machine you mean the machine built in accordance with patent No. 240,007?

A. Yes.

Q. 32. Now, between 1890 and the present time it is a fact, is it not, that you have had a monopoly in unhairing with a brush machine with these exceptions, that for some years subsequent
39 to 1890 the North American Electric Seal Unhairing Co. operated some machines in the city of New York, and that within the last few years others have tried to do so; against all of these persons who tried to do so you have commenced suits, and in every suit that has come to final hearing you have obtained an injunction.

A. Yes.

Q. 33. The North American Electric Seal Unhairing Co.—what sort of a concern is that?

A. Well, they are an unhairing company. They had a brush machine and the electric process by which they removed the hair—it was really owned by a large importing fur house in the city of New York.

Q. 34. Who was that fur house?

A. The name was Joseph Ullmann & Co. They are one of our largest customers to-day and were at that time.

Q. 35. This North American Electric Seal Unhairing Co. started in to unhair seal skins, is that it?

A. Yes, sir. There were no coneys to be unhaired at the time.

Q. 36. Quite a number of years ago you bought out this North American Electric Seal Unhairing Co., did you not?

A. Yes.

Q. 37. You examined the machines used by them?

A. Yes.

Q. 38. Were these machines built in accordance with the eighth claim of the Sutton patent here in suit?

A. I think so.

Q. 39. Why did you not stop these machines sooner by suit?

A. Well, we had very good reasons, as this house, Joseph Ullmann & Co., were one of our largest seal customers. We did not want to run up against them for fear that we might lose their trade, which they really threatened to do. They threatened to have their skins all machined in London if we did not stop proceedings against them, and we thought it profitable to discontinue any proceedings.

Q. 40. About how much royalty have you paid to John W. Sutton, the patentee, under this exclusive license which he has given to you?

A. About $100,000, or about $10,000 on an average per year.

Q. 41. You know the $D^2$ brush of the Sutton patent in suit, do you not?

A. Yes.

Q. 42. About when was it that you took that $D^2$ brush off machines built in accordance with the Sutton patent?

A. I think it was in 1896.

Q. 43. And since that time have you been operating the Sutton machines without that brush?

A. Yes.

Q. 44. Have you constructed a machine and have you operated the same and regularly and commercially unhaired coney pelts thereon built in strict accordance with the eighth claim of the Sutton patent in suit, and by that I mean a machine without the $D^2$ brush and without the oscillating guard combs?

A. We have several machines running there all the time that have no oscillating guard combs, nor the $D^2$ brush—simply a stationary card and rotary brush.

Q. 45. About how many coney pelts have you unhaired on these Sutton machines since 1892 or thereabouts?

A. I guess up to this year now may be about eight million skins.

Q. 46. What price do you charge for unhairing coney pelts?

A. $1.80 net per dozen.

Q. 47. About how many coney pelts can be unhaired upon one of these Sutton machines?

A. In a ten hours' working day eight dozen one one machine.

Q. 48. How many machines can one man operate?

A. Three machines.

Q. 49. About how many machines have you had in operation for many years past?

A. We have sixty-three machines running in New York and in Paris, France, on an average of about fifty.

Q. 50. What does the Sutton rotary separating brush do to the fur?

A. It comes up in front of the stretcher-bar on the edge of the stretcher-bar and makes a part and brushes down the fur to one side in order to allow the hair to spring up so that the knives can remove them.

Q. 51. Have you made any experiments with soft and hard bristle brushes?

A. Yes, sir.

Q. 52. What are the softest brushes made of?

A. Well, the softest brushes that we have used were made of badger hair.

Q. 53. And the hardest?

A. The hardest were pigs' bristles or horse hair, the horse hair being preferable because they are the cheapest.

Q. 54. Have you operated on these Sutton machines with soft and with hard bristles?

A. Yes, sir.

Q. 55. Was there any perceptible difference in the result?

A. Well, we experimented with them in order to find out which brush would do the best work, but there was no difference in the result, so we kept on with the horse hair bristles.

Q. 56. Why?

A. Because it is the cheapest and does the work just as good as any brush can do it.

41 Q. 57. The pelt of a seal, after it is removed from the carcass, is salted and dressed, and during this process of dressing or subsequent thereto the long water hairs are removed; the pelt is then dyed, and it is in this condition that it comes to you for the purpose of removing the remaining water hairs, some of which are broken off water hairs and others are young hairs?

A. Most of the hair that are left in there to be removed by us after the skin has been dyed are hair that the dresser broke off in the process of pulling out the long master hairs, and also lots of young hairs that are not full grown, not reached the top of the fur.

Q. 58. In the case of coney skins, which are the skins of French and Belgian rabbits, the skins are first sheared—that is to say, the fur and hair are sheared to the same level and then dyed?

A. Yes, that is right.

Q. 59. What is the length of the fur and hair in coney and seal pelts?

A. The length of the seal varies according to quality of the skin. They may be five-sixteenths; they may be sometimes only a half inch, and sometimes a fraction less than that in length. In the

coney before it is sheared for dyeing, the fur and hair together will be about an inch in length, sometimes an inch and a quarter; they are then sheared down to a desirable length so as to imitate the seal.

Q. 60. What is the value of a coney pelt?

A. About $5 or $6 a dozen.

Q. 61. What is the value of a seal pelt?

A. They vary from $30 to $60 apiece.

Q. 62. What is the value of an imitation seal skin sacque made from coney pelts as compared with a seal skin sacque?

A. A coney jacket is worth about $30 to-day and a seal skin from $150 to $300.

Q. 63. It is difficult to distinguish a good imitation seal skin sacque made from coneys from a seal skin sacque, is it not?

A. For the inexperienced eye—you can't tell the difference.

Q. 64. The public can't tell the difference?

A. The public, yes.

Q. 65. The Cimiotti Unhairing Company is the successor of the firm of Cimiotti Bros.?

A. Yes, sir.

Q. 66. Have you unhaired any coney pelts on the air blast machine built according to patent No. 240,007?

A. Yes; before we had the Sutton machines completed.

42 Q. 67. And was the work satisfactory to the trade?

A. Yes, sir.

Q. 68. How many contacts are there in your machine between the rotary separating brush and the stretcher-bar per minute?

A. About sixty-five contacts per minute.

Cross-examination by Mr. SCHREITER:

X Q. 69. Are you the same Mr. Cimiotti who testified on behalf of the complainants in the case of these same complainants against Karl Mischke and in the case of the same complainants against William A. Hulbert?

A. Yes.

X Q. 70. I have here before me the record of your examination in those two cases, and I shall read to you some of the questions and answers relating to the matters as to which you testified in your direct examination, and I ask you to state whether this testimony as contained in the questions and answers that I shall read to you is the testimony that you have given in those respective cases.

I refer to your testimony in the case against Karl Mischke.

"Q. 6. Your machine was best adapted to unhair seal skins, was it not? A. It was built for that purpose."

Did you so testify?

A. Yes, sir.

"Q. 7. The machine built in accordance with the Sutton patent

here in suit, is not at all adapted to unhair seal skins, is it? A. No, sir."

Did you so testify?

A. Well, if it is on the record I suppose I testified to that.

"Q. 8. The Sutton machine here in suit is a power machine, is it not? A. Yes, sir."

Did you so testify?

A. Yes.

"Q. 9. John W. Sutton testified in another suit that up to March 1897 you had paid him about $90,000 royalties for the use of his invention. Do you agree with this sum? A. I suppose it is correct, because his statement is, no doubt, taken from a memorandum. I cannot say from memory."

Did you so testify?

A. Yes.

"Q. 12. You have about fifty-one machines built under this patent in use in this city, have you not? A. About fifty-one in use; we had more, though."

Did you so testify?

A. I suppose I did correctly at the time.

"Q. 19. What do you call coney skins in the trade? A. They are sold in garments under the name of 'electric seal.'"

Did you so testify?

A. Yes.

43 "X Q. 42. How long is it since the business of unhairing coney skins on machines was commenced? A. About nine years ago." (This testimony was taken in 1899.)

Did you so testify?

A. I guess that is right so far as my recollection went at the time.

"X Q. 43. Was not a man by the name of Anton Hedbavny the first one who commenced the unhairing of coney skins? A. I do not know."

Did you so testify?

A. Yes.

"X Q. 44. Do you know that Hedbavny invented a machine for unhairing of skins by means of a heated electric wire? A. Yes."

Did you so testify?

A. Yes.

"X Q. 45. Is it not a fact that the coney skins unhaired on this electric machine were instrumental in giving the name 'electric seal' to the product, I mean to the unhaired coney skins? A. I believe so; yes."

Did you so testify?

A. Yes.

"X Q. 48. You sued the North American Electric Seal Unhairing Co. for the infringement of your patent No. 240,007, did you not? A. I did."

Did you so testify?

A. Yes.

"X Q. 51. Did you purchase the business and patents of the North American Electric Seal Unhairing Co.? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 52. Did you also purchase the machines and implements? A. Yes, the whole plant."

Did you so testify?

A. Yes.

"X Q. 55. Did you use in your business machines constructed according to the specifications of the Sutton patent in suit. A. The machines that we use to-day are constructed according to Sutton's later patent and contain two brushes."

Did you so testify?

A. Yes.

"X Q. 57. Are the machines you use now constructed substantially in accordance with the specification and drawings of the second Sutton patent No. 556,742? A. The machines are constructed substantially in accordance with the patent, except that we do not use the brush $D^2$ and there are minor variations in the construction."

Did you so testify?

A. Yes.

44 "X Q. 61. Do the machines which you use now and which I understand do not have the brush designated by $D^2$ in the drawings of the patent perform as satisfactory work as the machines which do not employ the brush $D^2$, or do these machines which you use now without the brush $D^2$ perform better work than the machines you used first? A. They do perform better work without the brush $D^2$."

Did you so testify?

A. Yes.

"R. D. Q. 72. Did you have the construction of the machines omitting the brush $D^2$ and which you say operated better and more satisfactorily than those you used prior to that time, patented? A. No; the only other patent that was taken out without the brush $D^2$ was the 1895 Sutton patent."

Did you so testify?

A. Yes.

"R. D. Q. 73. How long about prior to 1895 did you commence to use machines without the brush $D^2$? A. I cannot remember."

Did you so testify?

A. Yes.

X Q. 71. Now, I read from the record of your testimony in the case of the same complainants against William A. Hulbert:

"Q. 8. For how long a period have you continuously operated, say, twenty-five of these machines? A. Since 1892 or 1891, somewheres along there."

Did you so testify?

A. I cannot remember all that testimony and swear verbally that it is all correct, but I suppose it is. I suppose I did testify that way.

"Q. 15. About how many dozen coney pelts can an operator unhair upon one of these Sutton machines per day? A. He can do about twenty dozen on three machines per day. One man operates three machines."

Did you so testify?

A. Yes.

"Q. 19. What are these coney pelts called in the trade? A. They call them 'electric seal' after being machined."

Did you so testify?

A. Yes.

"Q. 61. Between 1888 and 1898 you had but one competitor in this business and that was the North American Electric Seal Unhairing Co.? A. Yes."

Did you so testify?

A. Yes.

"Q. 62. In 1897 you bought out that company? A. Yes sir."

Did you so testify?

A. Yes, sir.

45 "X Q. 70. The license pleaded in the complaint is stated to be on or about the 1st day of January, 1897. Please explain whether this was a new license or a renewal of the license previously granted to Cimiotti Bros. A. It was practically the same license, but there was a change in the firm of Cimiotti Bros. and Mr. Sutton had taken a patent in 1895 and the corporation of Cimiotti Unhairing Company had been formed, and there had been an oral modification in the stipulated royalty paid to Mr. Sutton, and for these and other reasons the old 1888 license was canceled and a new one was given by Mr. Sutton to the corporation. The principal reason for the change was that the original license provided a royalty of six cents per skin on all skins unhaired by our firm, whether on the Cimiotti air blast machine or on the Sutton machine. This amount, six cents per skin, was fixed before there were any coney pelts in the market. In 1897 when the new agreement was made the changed conditions were taken into consideration, and I believe the royalty was fixed for coney pelts at eight cents per dozen for coneys up to a certain quantity, and then after that six cents; and it is still six cents for seal skins. That remains the same."

Did you so testify?

A. I suppose that is correct, but I do not remember having given such testimony.

"X Q. 72. When did the Cimiotti Unhairing Company or their predecessors, Cimiotti Bros., commence to unhair coney skins? A. I think somewhere about 1890."

Did you so testify?

A. Yes.

"X Q. 73. Your brother, Mr. Ferdinand F. Cimiotti, is the other member of the prior firm of Cimiotti Bros., is he not? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 74. He testified that Cimiotti Bros. commenced to unhair coney skins on machines built in accordance with the Sutton patent in suit between 1892 and 1893. A. We commenced operations on coney skins about 1890—I think I am right. My brother must be mistaken. I can prove that right here, if you will take my statement. We were three years in one place, corner Elizabeth and Bleecker, and four years in this place, that is seven years; and we operated coney skins—had sixteen machines in operation
46 when we were in Bond St. and the Bowery, in the German Exchange Bank building—so that his statement is incorrect."

Did you so testify?

A. Yes.

"X Q. 75. Before you commenced unhairing coney skins on Sutton machines did you unhair such coney skins on the Cimiotti air blast machines? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 77. Before you commenced to build the Sutton machines did you experiment with the one Sutton machine which you said you had in unhairing of coney skins? A. I do not think we tried coney skins at the time. We worked only seal skins on them."

Did you so testify?

A. Yes.

"X Q. 78. Do you mean on that Sutton machine? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 79. You do not seem to understand my question. I inquired whether before you ordered the first batch of Sutton machines for unhairing of coney skins you made an experiment with the one machine which I understand you to say you had to ascertain whether coney skins can be unhaired on that machine as it was, or whether any changes or modifications are necessary? A. Oh, yes. I understand the question now. When the coney industry came into the market we naturally thought that the Sutton machine, being an automatic machine, would be better adapted, and we merely made experiments with coneys and found it satisfactory, upon which the order was given for a number of them for coneys."

Did you so testify.

A. Yes.

"X Q. 81. Did you use the Sutton machine (by Sutton machine I mean a machine built in accordance with the specification and drawings of the Sutton patent in suit) for unhairing of seal skins? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 82. How does the result of the operation of the machine compare with the machines built according to your prior patent—I mean the air blast machine? A. You mean the result as regards the workmanship?

"X Q. 83. Yes. A. Well, the result would be about the same. The only difficulty in unhairing seals on a power machine is that it is more dangerous—that if some wool should spring out occasionally you cannot stop it quick enough to prevent damage to the wool, and therefore a hand machine is preferable, as the man has it more under control all the time. That is all the difference."

47

Did you so testify?

A. Yes.

"X Q. 88. When did you commence to unhair seal skins on the Sutton machine? A. I cannot tell whether we unhaired before we got the patent in 1888. I think we did experimentally, but I am not sure whether it was before 1888 or not."

Did you so testify?

A. Yes.

"X Q. 89. When did you commence to unhair seal skins on Sutton's machines commercially? A. Well I never unhaired any seal skins commercially on the Sutton machine. I could not say exactly the time. Most of the skins that we unhaired on the Sutton machine were done day by day in an experimental way. Of course they were skins that belonged to customers of ours, and they went in with the other skins that were unhaired on the blast machine, so I cannot limit that to any exact time."

Did you so testify?

A. Yes.

"X Q. 90. I understood you to say that the first license that was granted to Cimiotti Bros. by Sutton relating to the Sutton patent in suit provided that Cimiotti Bros. should pay to Mr. Sutton a royalty on all skins unhaired, whether on machines built according to his letters patent or on your air blast machines. Is that correct? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 92. You testified that you have paid to Mr. Sutton as royalty for the use of the invention disclosed in the Sutton patent in suit about $10,000 on the average per year for more than ten years past. Does this statement include also the sums that you paid to Mr. Sutton as royalty on seal skins unhaired on your air blast machines? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 102. How much money did Cimiotti Bros. pay to Mr. Sutton under that agreement of 1888 before the unhairing of coney skins was begun? A. I cannot give you the lump sum. It might have been probably $5,000 a year or more; I do not remember."

Did you so testify?

A. Yes.

"X Q. 103. Have you any books or memorandum relating to that? A. No, sir, I have not."

Did you so testify?

A. Yes.

48 "X Q. 104. Would the books of the Cimiotti Bros. show it? A. They would if I had them."

Did you so testify?

A. Yes.

Adjourned to to-morrow at 2 p. m.

NEW YORK, *Nov.* 15, 1901.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of Mr. CIMIOTTI resumed:

"X Q. 109. Have you any books or any statements showing the number of seal skins or other skins unhaired by you from the time that you made the agreement with Mr. Sutton in 1888 and until you commenced to unhair coney skins? A. No, sir."

Did you so testify?

A. Yes.

"X Q. 110. You base the statement that Cimiotti Bros. unhaired as many as eighty or ninety thousand seal skins in a year at the time of your agreement with Mr. John W. Sutton of 1888 on your memory or recollection of these quantities, do you? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 107. These eighty or ninety thousand seal skins were all unhaired on the so-called Cimiotti air blast machine, were they not? A. All except a few which we unhaired on the Sutton machine."

Did you so testify?

A. Yes.

"X Q. 108. By the words 'on the Sutton machine' you intend to designate the one machine built according to the Sutton specification and drawings which you testified you had before the unhairing of coney skins came into market, do you not? A. Yes, sir."

Did you so testify?

A. Yes.

"X Q. 111. Did the agreement of 1888 between Gustav and Ferdinand F. Cimiotti or Cimiotti Bros. and John W. Sutton relate solely to the letters patent in suit, or did it include other patents or other matters relating to the unhairing business? A. Well, that agreement related to the patent in suit and whatsoever subsequent inventions or improvements he might make."

Did you so testify?

A. Yes.

49 "X Q. 112. Were not in this agreement included also other patents of Mr. Sutton antedating the patent in suit? A. I think so. There might have been one or more. I think he had

several other patents that had no value for us or anybody else, and he sold us the whole bunch and whatever subsequent improvements on the patent in suit he might make."

Did you so testify?

A. Yes.

"X Q. 113. Did the subsequent agreement between John W. Sutton and the Cimiotti Unhairing Company, which, as you testified, superseded the agreement just introduced in evidence, also embrace all the prior patents and subsequent inventions of Mr. Sutton? A. The patents belonging to John W. Sutton prior and subsequent to that date of 1888 were included in the subsequent agreement."

Did you so testify?

A. Yes.

"X Q. 114. Are you unhairing any seal skins on the Sutton machines now? A. No, sir."

Did you so testify?

A. Yes.

"X Q. 120. Are the Sutton machines built for you or the Cimiotti Unhairing Co. by Horstmann & Co., of Newark, as you testified, exactly like the machines set forth and illustrated in the patent in suit? A. Well, they are not exactly according to the drawing. There were some changes made in the course of experimenting on them. We made some changes in the mechanical details, but the original principles of the patent were adhered to."

Did you so testify?

A. Yes.

"X Q. 115. What brushes do you use ordinarily on the Sutton machines now employed in your factory for unhairing of coney or other skins? A. We use an ordinary bristle or horse hair brush."

Did you so testify?

A. Yes.

"X Q. 116. I understand from the testimony in another case that these brushes used by you in unhairing of skins on Sutton machines consist of four rows of bristles secured to an iron or steel shaft approximately at right angles to each other. Is that correct? A. Yes."

Did you so testify?

A. Yes.

X Q. 72. In the case of the same complainants against the American Unhairing Machine Company you testified:

"X Q. 57. Are the machines you now use constructed substantially in accordance with the specifications and drawings of the second Sutton patent No. 536,742? A. The machines are constructed substantially in accordance with the patent, except that we do not use the brush $D^2$ and there are other minor variations in the construction."

Did you so testify?

A. Yes.

"X Q. 59. Will you kindly describe the kind of brush you used

in the place designated by letter K in the drawing of the Sutton patent 536,742. A. This is a movable rotary brush which we have always use- since we have adopted the Sutton inventions. We used it in machines which we have built under the patent in suit and we use it in the machines which we have built in accordance with the later patent."

Did you so testify?

A. Yes.

"X Q. 55. Had you used in your business machines constructed according to the specifications of the Sutton patent in suit? A. The machines that we use to-day are constructed according to Sutton's letters patent and contain two brushes."

Did you so testify?

A. Yes.

"X Q. 61. Do the machines which you use now and which I understand do not have the brush designated by $D^2$ in the drawings of the patent perform as satisfactory work as the machines which had employed the brush $D^2$, or do these machines which you use now without the brush $D^2$ perform better work than the machines you used first? A. They do perform better work without the brush $D^2$."

Did you so testify?

A. Yes.

X Q. 73. In the case of Cimiotti and another *vs.* William A. Hulbert you testified:

"X Q. 149. In the machines used by Cimiotti Co., which you call the Sutton machines, there are in use the devices described as reciprocating rubbers *h* and *h'* in the specification and drawings of the Sutton patent? A. No, sir."

Did you so testify?

A. Yes.

"X Q. 150. What do you use in place of the stationary card E on the front side of the stretcher-bar in those machines used by the Cimiotti Unhairing Company which you call Sutton machines? A. We use the stationary rotary brush made in accordance with the 1895 Sutton patent No. 536,742, of April 2, 1895."

Did you so testify?

A. Yes.

51 "X Q. 141. Were all the machines used by the Cimiotti Unhairing Company which you call Sutton machines built by Horstmann & Co., in Newark? A. All except the first one."

Did you so testify?

A. Yes.

"X Q. 142. Were they all built in one lot? A. No, sir; they were ordered at three different times."

Did you so testify?

A. Yes.

Further cross-examination suspended by consent.

Direct examination by Mr. RAEGENER continued:

Q. 74. In the Mischke case you were asked a question whether *the* machine built in accordance with the Sutton patent in suit was adapted for unhairing seal skins, and you testified briefly that it was not. Will you kindly explain to the court what you understood the question to refer to, and anyway, irrespective of that, what is the fact?

A. When I said it was not adapted I did not mean by that that practically it would not unhair seal skins; but commercially at the time it was not valuable to us as a seal-unhairing machine, as we had plenty of machines to unhair seals—I mean by that the Cimiotti blast machine—and upon which machines we could do probably twice as many per day as we could do on the Sutton machine, by reason of the machine being new yet, and many stops would have to be made during the operation of a regular working day with unskilled men on the machine, and it certainly would not be as profitable to work them as it would have been to keep on with our Cimiotti air blast machines, as in both cases it would require one man to attend to each machine, so that there would be nothing gained by economizing with labor, and they were certainly better adapted from a commercial stand-point for unhairing coneys, as we could operate three machines with one man, which made the expense proportionately small.

Q. 75. About how many seal skins could one operator unhair upon the Sutton machine built in strict accordance with the Sutton patent in suit?

A. It is a question of having an experienced man at such a machine, and he probably could not do more than about four to five skins per day of ten hours' work whereas upon our air blast machines a skilled operator, such a one as was familiar with operating such machines for years, could unhair ten per day.

52 Q. 76. So that if Sutton would have gone into the business of competing with you in unhairing seal skins, you mean to testify that one of his operators could have unhaired about five seal skins per day, while one of your operators on your air blast machine could have unhaired about ten seal skins per day. Is that it?

A. Yes. Not alone that, but it would probably only have been a question of time when his laborer would have been more experienced in operating with Sutton's machines and he could have unhaired as many as we would on one of our air blast machines.

Q. 77. It therefore appeared to you that Sutton would have been able to compete with you in your business, and if you would not have become an exclusive licensee under his patent it would have meant a price reduction. Is that it?

A. There is no question about that.

Q. 78. Was it for this reason that Sutton insisted that you should agree to give him six cents upon every seal skin unhaired in your business, whether it was unhaired on your air blast machine or on his brush machine?

A. Yes, certainly; that was the reason why. We made a contract with him and agreed to pay him a royalty of six cents for every seal skin machined on the Cimiotti air blast machine at the time, or his machine, for that matter, in order to keep him from competing with us.

Q. 79. Now, you have been asked a great many questions upon the subject whether as a matter of fact your corporation has been and is to-day using machines made in accordance with the patent here in suit, and I understand that you have testified that ever since you took a license from Sutton in 1888 or thereabouts all the machines which you have used for the unhairing of coney pelts have been machines which have been built in accordance with the Sutton patent in suit; that up to about 1894 these machines were built as shown in the drawing of the Sutton patent in suit; that after Sutton obtained his 1895 patent you substituted a second brush in place of the stationary card E of the patent in suit; that for many years past on these same Sutton machines you have dispensed with the brush $D^2$, and that for several years past you have constructed and commercially used several machines built in strict accordance with the eighth claim of the patent in suit, that is to say, machines having a stretcher-bar, means for intermittently feeding the pelt over the bar, a stationary card on the on-side of the bar, a rotary separating brush on the other side, and mechanism for causing
53 that rotary separating brush to operate on the edge of the stretcher-bar and in leaving sweep over the fur on to the off-side of the stretcher-bar; and that of course all these machines likewise have knives wherewith the hair are removed. Is that so?

A. Yes. In fact we are using the same machines constructed in accordance with the Sutton patent in suit, with the exception that we have added in the place of the stationary card E a stationary rotary brush to the same machines, with the necessary addition of mechanism to move such brush. Otherwise the machines are identical with those first built by us.

Q. 80. Have all the Sutton machines which you now have in use at your place been built from the same patterns as the first machines built by Horstmann?

A. Yes, sir.

Adjourned to Monday, Nov. 18th, at 10:30 a. m.

NEW YORK, *Nov.* 18, 1901.

Met pursuant to adjournment.
Present: Counsel as before.

Cross-examination of Mr. GUSTAV CIMIOTTI resumed:

X Q. 81. Referring again to the record of your testimony in the case of Cimiotti Unhairing Co. and another against William A. Hulbert, you were asked:

"X Q. 137. Was any written contract made about the building of these machines? A. Yes, sir.

"X Q. 138. Will you produce the contract?

"Objected to, and complainants' counsel instructs the witness not to produce the said contract.

"A. I will act according to counsel's instructions.

"X Q. 139. Why do you refuse to produce this contract? A. I refuse to produce it."

Did you so testify?

A. Yes.

X Q. 82. In the same case, with reference to the origin of the art of unhairing of coney skins, you were asked:

"X Q. 96. The unhairing of coney skins was originated by Anton Hedbavny and Max Blau, who organized the North American Electric Seal Unhairing Co., was it not? A. I do not know what you mean by originated.

"X Q. 97. I mean the industry was originated. A. I do not know about that. I am not supposed to know who originated it. The idea of unhairing skins was originated by us. Now, it made no difference whether you unhaired seals, otters, beavers, neutrias
54 or other skins that required unhairing, when the necessity arose and there was a demand for that class of goods, why they were unhaired. I don't think that any man is entitled to any particular invention as to that industry. He might claim that he made coneys after awhile.

"X Q. 98. Anton Hedbavny and Max Blau, or the North American Electric Seal Unhairing Co., were unhairing coney skins before Cimiotti Bros.—the predecessors of your company—embarked on that branch of the unhairing business? A. I don't know. I am not prepared to say whether they did unhair them before us. They didn't go and build machines for the purpose of unhairing coney skins. They built those machines to unhair seal skins, and when the emergency arose to machine coneys they naturally took hold of it the same as we did. That is all to that. I have heard that they claim that they were the first to unhair coneys, but I am not willing to admit their claim."

Did you so testify?

A. Yes.

X Q. 83. Your brother, Mr. Ferdinand F. Cimiotti, who, as I understand from your testimony, is the joint patentee with you in the machine set forth in the patent No. 240,007, for an air blast machine, and the other member of the firm of Cimiotti Bros., the predecessors of the complainant corporation herein, testified in the case of the Cimiotti Unhairing Company and John W. Sutton against the American Unhairing Machine Company that the unhairing of coney skins was commenced by Mr. Hedbavny, the inventor of the machines set forth in the letters patent No. 408,879, Aug. 13, 1889, and No. 502,359, Aug. 1, 1893?

Objected to by complainants' counsel, on the ground that the question contains a series of questions and inferences, and that it is incompetent and hearsay, for the following specific reasons:

First. So far as this witness is concerned there is no evidence whatever that Ferdinand F. Cimiotti ever testified as insinuated by the question. There is no evidence that this witness heard his brother so testify, and there is no certified copy of any testimony of Ferdinand F. Cimiotti before us. It therefore amounts to this, that the questioner, to wit, defendant's counsel, is testifying that somebody else in a certain other suit at some other time testified in a certain way.

55 The question is further objectionable, because it is addressed to a lay witness and therefore contains the inference that Hedbavny did make certain inventions. The witness could not of his own knowledge know anything on that subject.

The question is further objected to because copies of the patents are not shown to the witness, and it would therefore be manifestly impossible for him to say whether he agreed with his brother, even assuming that his brother had said that Hedbavny was the inventor of machines shown in certain patents not shown to this witness.

The question is further objected to because it ie involved. It is evident that the examining counsel desires to know a fact. That fact briefly is that Blau was or was not the first to unhair coney skins, and that those coney pelts were or were not in the trade called "electric" and "Chinese." There is therefore no earthly reason why so simple an inquiry should be surrounded by a volume of words and inferences.

A. If F. F. Cimiotti testified to such a fact, I know and I think that his memory was at fault; and, furthermore, he was not in a position to give such positive testimony, as he was not managing the manufacturing part of the business at the time and could not be as familiar with the conditions as I was, as I was continually among the trade at the time and his duties were simply clerical—that is, office duties. Therefore I do not agree with him.

X Q. 84. Your brother, Mr. Ferdinand F. Cimiotti, was asked in his examination as a witness in that case: "What branch of business of your corporation and its predecessors have you had charge of it for the past nineteen years," and he answered: "The financial part of it, drumming trade, collecting." Don't you think that he was in touch with the trade and in position to know who commenced a new branch of your trade as he testified?

Objected to by complainants' counsel, on the ground that defendant's counsel is now testifying, there being no evidence whatever before this court that the aforesaid Ferdinand F. Cimiotti testified as defendant's counsel says he did. This whole line of questions *are* objected to, because it is utterly immaterial and irrelevant

56 to any issue before the court what somebody else who is not

a party to this suit and not a witness in this case may or may not have said on a previous occasion.

The testimony is further objected to on the ground that it is utterly immaterial whether this witness agrees or disagrees with anything that anybody else not a party or a witness on a previous occasion said.

A. I repeat my answer as before, that I do not agree with him.

X Q. 85. You have seen the machines used by the North American Electrical Seal Unhairing Co. in unhairing of coney skins, did you not?

Objected to by complainants' counsel, as the question is not plain. Does the counsel mean whether the witness saw those machines unhair coney pelts? If that is what he wants to know he should state it?

A. I saw the machines, yes.

X Q. 86. Please look at the drawings of this letters patent I now hand you and tell me whether they represent such machines as were used by the North American Electric Seal Unhairing Co. for unhairing of coney skins at any time.

A. No, sir.

X Q. 87. Please describe as briefly as you can the characteristic features of those machines used by the North American Electric Seal Unhairing Co. which you have seen.

A. The last time I saw the machines referred to in the question they had an oscillating stretcher-bar and a stationary rotary brush. That is about as near as I can come to explaining them.

X Q. 88. How were those machines constructed or arranged when you saw them first?

A. The machines, as I saw them first, had the stretcher-bar fixed and the rotary brush was also in fixed stationary bearings—I made a mistake. The stretcher-bar over which the skin was fed was stationary, fixed, and the rotary brush oscillated forward and backward to the stretcher-bar.

X Q. 89. You sued the North American Electrical Seal Unhairing Co. for the infringement of your patent No. 240,007, April 12, 1881, for an air blast unhairing machine, did you not?

A. Yes, sir.

X Q. 89½. At the time when you sued the North American Electric Seal Unhairing Co. you had already made the agree-
57 ment with John W. Sutton for the exclusive right under the patent of May 22, 1888, No. 383,258?

A. I think so, yes.

X Q. 90. Your brother, Mr. Ferdinand F. Cimiotti, testified in the case of Cimiotti *et al.* against The American Unhairing Machine Co. that your suit against the North American Electric Seal Unhairing Co. was commenced about 1889 or 1890, and that the evidence that was furnished to you before that suit was commenced was that

Hedbavny used a brush which was in stationary bearings and revolved with a speed of about 2000 revolutions per minute. Do you agree to his testimony?

A. Yes; I guess that's right.

X Q. 91. Do you know, Mr. Cimiotti, of your own knowledge, that a man by the name Anton Hedbavny invented a machine for removing of water hairs from pelts by means of an electrically heated wire, and that he obtained a United States patent dated August 13, 1889, for this machine?

A. I know of the patent.

X Q. 92. Were in those machines of the North American Electric Seal Unhairing Co. that you saw such electrically heated wires used for removing the water hairs?

A. Yes, sir.

X Q. 93. You testified that you and your brother, Ferdinand F. Cimiotti, were the inventors of the first machine for unhairing pelts. Are you positive that no machines for unhairing of pelts were known in the art prior to the invention of your machine which you believe to be the first?

A. Yes.

X Q. 94. Do you have any knowledge of the machine or of the letters patent granted for the construction of the machine invented by David Mueller, of the city of New York, for which the application was pending in the Patent Office at the same time when your application for the patent No. 240,007 was made?

A. I don't know anything about the machine. I have no more recollection of it, as there are a good many years passed since; but I know that my counsel notified Mr. Mueller at the time that he must desist from operating such a machine or we should bring suit against him, on which he promptly desisted.

X Q. 95. Please look at the drawings of the patent that I now show you and tell me whether you recognize the machine illustrated therein as the Mueller machine?

A. I have never seen the machine and do not know anything about it. The only thing I ever saw about it was a copy of the patent. That I saw.

X Q. 96. Is this such copy of the patent as you have seen then?

58 A. That I cannot say. I couldn't remember whether that is the same I saw or not.

X Q. 97. This patent is dated June 21, 1881, and it is stated therein that it was granted on application filed Nov. 5, 1880, Would that aid you in determining whether this copy now before you is the copy of the same patent as you saw?

A. No, sir.

X Q. 98. Do these drawings represent a machine for plucking furs wherein an air blast produced by a bellows is used for separating of the water hairs from the fur?

A. Well, to judge by the drawings I should think so, but that

wouldn't warrant me in saying that it is an unhairing machine unless I knew what the specifications said.

X Q. 99. The letters patent are entitled for a fur plucking machine, are they not?

A. Yes.

X Q. 100. Please read the specifications of the patent and tell us whether or not the machine represented therein is an unhairing machine of the class known as air blast machines?

A. Yes.

Defendants' counsel introduces the patent in evidence and the same is marked "Defendants' Exhibit Mueller 1881 Patent."

X Q. 101. Please look at the drawings and specifications of these two patents and state whether they represent the Rasmus machine for which you granted, as you testified, a license to Martin Bates, Jr., & Co.

A. The Rasmus machine for which we granted a license to Martin Bates, Jr., & Co. is the machine represented in the patent No. 275,077, April 3, 1883.

Defendants' counsel introduces the patent in evidence, and the same is marked "Defendants' Exhibit Rasmus 1883 Patent."

X Q. 102. The first machine built by John W. Sutton according to the patent of May 22, 1888, No. 383,258, you say was built about in 1887 by John W. Sutton. Was this the machine on which you have unhaired some seal skins, as you testified, prior to the time when you had such machines built for unhairing of coney skins?

A. Yes.

X Q. 103. Was this also the machine on which you made the experiments, as you testified, to see whether such machines are adapted or practical for unhairing of coney skins?

A. It is the same machine.

X Q. 104. Were these experiments conducted in your shop or in Mr. Sutton's place at that time?

A. They were made in Mr. Sutton's shop.

59 X Q. 105. The unhairing of the seal skins, as you testified, was also done in Mr. Sutton's shop, was it not?

A. Yes.

X Q. 106. This first Sutton machine was not set up and operated in your factory—I mean in the factory of Cimiotti Bros.—like other machines?

A. Yes, sir; it was after Mr. Horstmann had built the machines ordered by us according to the model of the first Sutton machine. The machine was set up in our shop with the others when completed and operated with the others.

X Q. 107. Did you use it for unhairing of coney skins?

A. Yes, sir.

X Q. 108. Do you use any of the Sutton machines for unhairing of seal skins?

A. No.

X Q. 109. What do you call a wiper on the Sutton machines?

A. They are two rubber pieces that were adjusted so that they would wipe over the top of the fur on the stretcher-bar in order to destroy the separation—give the brushes a chance to make another separation.

X Q. 110. Please look at the drawings—at the features marked *h* and *h'*, which are described in the specification as rotary reciprocating rubbers, which are guided in an oscillating supporting bar, said rubbers being quickly moved inward over the skin in front of the stretcher-bar and then lifted and returned to their normal positions so as to raise the hairs that lie down close to the skin and present them for the cutting action of the knives, and state whether these reciprocating rubbers *h* and *h'* are that which you designated in your testimony as wipers.

A. Yes, sir, they are.

Recess.

After recess.

X Q. 111. You never used that device on any of the Sutton machines that you operated in your business?

A. Not after we put them up for unhairing coneys. We took that wiper off.

X Q. 112. You said that you unhaired on machines constructed in strict accordance with the patent drawings of the patent here in suit in the neighborhood of a million skins. On what do you base this statement? Do you have any records or memoranda of the quantities of different skins unhaired by Cimiotti Bros. prior to 1894?

A. I have no records to that effect, but my statement is based upon this, that I do remember having a certain amount of
60 machines in operation which could do a certain amount of skins per day, so that I make an estimate of the skins done in two or three years by that.

X Q. 113. So, if I understand you correctly, you base your estimate of the quantity of skins unhaired on the number of machines and the capacity of those machines for unhairing of skins, and from that you calculate or deduct you unhaired in the neighborhood of a million skins. Is that correct?

A. Yes, sir; and I think a million skins is under-estimated at that.

X Q. 114. In the case of Cimiotti Unhairing Co. *vs.* Hulbert, you testified that Martin Bates & Co. paid you several thousand dollars a year for license for the Rasmus machine and that sometimes this license amounted to as much as a thousand dollars a month. This statement was also given upon your memory or calculation of the

quantities of skins unhaired? Mr. Rogers, when called as a witness, testified that Martin Bates & Co. never unhaired more than five to six thousand seal skins per year, and he repeated the statement positively that they did not in any year unhair more than five or six thousand seal skins at the utmost. Will you kindly explain, if you can, how you arrived at your estimate of the number of skins unhaired by Martin Bates & Co. and the amount of royalty paid to you, in view of this testimony of Mr. Rogers?

A. I have a very distinct recollection of having received a check from Martin Bates & Co. for royalty of $800, and that we, as we always did, immediately cashed their check and divided it between myself and my brother. What is more, Mr. Rogers' statement is certainly only made from memory and not from figures and letters; and their amount of business was also concentrated to a short season, not to be forgotten that they did not work twelve months a year. As they were importers of seal skins, naturally the seals came in to them within a period of say three or four months, in which they did all their seals that they did for the year.

X Q. 115. Mr. Rogers was connected with the business of Martin Bates & Co. at that time, was he not?

A. I believe he was their head man in the skin department.

X Q. 116. Were the amounts paid by Martin Bates & Co. as license for the Rasmus machine entered on the books of Cimiotti Bros. at the time?

A. Well, I think not.

X Q. 117. You testified that from 1881 until about the year of 1891 or 1892 you were the only concern in the United States
61 of America that unhaired pelts by machinery, with the exception of Martin Bates, Jr., & Co., whom you licensed to operate the Rasmus machine. Kindly state whether you had or have any knowledge of the business of unhairing pelts by machinery conducted by Henry W. Covert in a shop in Brooklyn, corner Bowen and —— streets?

A. I know nothing of him or his machine.

X Q. 118. You have read Judge Wheeler's decision in the case of Cimiotti Unhairing Co. and another *vs.* Karl Mischke and in the case against the American Unhairing Machine Co., did you not?

Objected to as immaterial and irrelevant.

A. I think I did. I don't remember.

X Q. 119. In that decision there is mentioned that between 1884 and 1886, I believe, Henry W. Covert operated a machine for unhairing of fur skins for the trade in that place I mentioned. Did you take regard to this unhairing business of Mr. Covert when you testified that from 1881 to 1891 or 1892 you were the only concern in the United States of America that unhaired pelts by machinery, or did you overlook that circumstance?

Complainants' counsel says that on the face of it this question is

incompetent, and for that reason he instructs the witness not to answer; and the further objection that it makes no difference what his honor Judge Wheeler found in another suit, on a question of fact, and that the counsel in this case has no right to testify, and neither is his honor Judge Wheeler called upon to testify in this case.

A. Under instructions of counsel I refuse to answer.

X Q. 120. The suits in which you obtained an injunction after final hearing are the cases of Cimiotti Unhairing Co. and another against Bowsky, the same complainants against Karl Mischke, and the same complainants against the American Unhairing Machine Co. Is that correct?

A. I think that is right.

X Q. 121. You have sued probably more than twenty and maybe thirty different parties for the infringement of the Sutton patent in suit herein between 1890 and the present time, have you not?

A. Not as many as that.

X Q. 122. Can you state approximately how many separate suits there are pending for the infringement of the Sutton pa[illegible]t in suit herein wherein The Cimiotti Unhairing Co. and John W. [illegible]tton are complainants in the southern district of New York?

A. I do not want to answer that.

62 X Q. 123. Are more than fifteen of such cases pending in the southern district of New York?

A. I have declined to answer that question.

X Q. 124. The decision of Judge Townsend in the case against Max Bowsky and the decision of Judge Wheeler in the case against Karl Mischke and in the suit against the American Unhairing Machine Co. were rendered before the English patent to Lake was brought in the case?

Objected to as incompetent, hearsay and not the best evidence. Certified copies of the records in the various cases are the best evidence. Witness instructed not to answer.

A. Under advice of counsel I decline to answer.

X Q. 125. By $D^2$ you designate the brush supported at the rear of the rotary knife in the machine of the Sutton patent in suit herein, do you not?

A. Yes.

X Q. 126. I call your attention to the statement on page 4 of the specification of the Sutton patent of Jan. 31, 1899, No. 618,625, reading as follows: "By the use of rotary reciprocating brushes on both sides of the pelt in connection with the cutting knives the construction of my pelt-plucking machine is considerably simplified and rendered more reliable, especially as the carding brush heretofore supported at the rear of the rotary knife can be entirely dispensed with," and I ask you to say whether the machines in which you do not use this carding brush $D^2$ of the Sutton patent in suit

are constructed according to the specification and drawings of this subsequent Sutton patent?

A. I do not know anything about that patent. All I know is that Mr. Sutton took out the patent and we paid no further attention to it, as it is not in use.

Defendant's counsel introduces in evidence the patent referred to in the preceding question and answer, and the same is marked "Defendant's Exhibit Sutton 1899 Patent."

Complainants' counsel believes that he has a right to object to evidence introducing any exhibits in evidence at this stage; but inasmuch as it is understood between the parties that these defendant's exhibits are to be printed by the defendant and not by complainants, he waives the objection.

X Q. 127. You testified that up to about 1894 you used machines made in strict accordance with the patent drawings of the patent here in suit, and subsequently you testified that you took
63 that brush $D^2$, which is the carding brush supported back of the knife in the machine of the Sutton patent in suit, off machines built in accordance with the Sutton patent in suit in 1896. You said: "I think it was in 1896." Will you please state whether you then or prior thereto changed in any other respect the construction of the Sutton machine in accordance with the improvements disclosed in the Sutton patent No. 536,742, of April 2, 1895, of which I hand you a copy to examine.

A. I do not exactly remember whether we took off the $D^2$ brush in 1894 or 1896. I am not sure about the date, but we first took off the $D^2$ brush and then we substituted in the place of the card E on one side of the bar the rotary brush in stationary bearings to the best of my recollection.

X Q. 128. The rotary brush in stationary bearings which you say you substituted for the card E of the Sutton patent in suit is the brush designated F in the drawings of the subsequent Sutton patent No. 536,742, is it not?

A. Yes.

Defendant's counsel introduces in evidence printed copy of drawings and specification of the patent referred to in the preceding testimony, and the same is marked "Defendant's Exhibit Sutton 1895 Patent."

X Q. 129. I call your attention to the circumstance that in the machine of the Sutton patent in suit herein the brush F, which is designated as the rotary separating brush, is moved by the mechanism shown in Fig. 1 of the patent drawings and guided in its motion by a pin designated $f$ traveling in the groove $f'$ of the plate $f^2$, where no such mechanism or device for guiding is provided in the machine of the 1895 patent. Kindly look at the drawings and state whether the Sutton machines that you used after 1894 did contain this mechanism for moving and guiding the brush as shown in the

Sutton patent in suit, or whether they were constructed more in accordance with the drawings and specification of the Exhibit Sutton 1895 Patent.

A. They are constructed more in accordance with the 1895 patent in as far as the mechanism is concerned that moves the rotary separating brush K upward and forward in front of the stretcher-bar.

X Q. 130. In the specification, page 3, line 46 *et seq.* of the Sutton patent in suit herein the action of the brush F, which is the movable separating brush, is described to be "to separate the fur from the hairs, brushing down the former and leaving the stiff hair standing out." Kindly state which of the brushes used in the machines constructed, as you say, more according to the
64 specification and drawings of the Exhibit Sutton 1895 Patent performs the separation of the fur from the water hairs.

A. The brush K.

X Q. 131. Am I correct in understanding from your testimony heretofore given that in these Sutton machines constructed, as you said, more in accordance with the Sutton 1895 patent you do not use the carding brush $D^2$ back of the rotary knives?

A. No, sir.

X Q. 132. This carding brush back of the rotary knife is designated in the drawings of the Sutton 1895 patent D', is it not?

A. Yes, sir.

X Q. 133. And that is the same carding brush as the carding brush $D^2$ of the Sutton patent in suit?

A. Yes.

X Q. 134. And that you described, since about 1894?

A. Thereabouts, yes, sir.

X Q. 135. Does this brush K of the Sutton 1895 patent have a motion along the off-side of the stretcher-bar in moving from the position shown in Fig. 7 to the position shown in Fig. 9?

Objected to, firstly, because there are no drawings of the machines actually used by complainants in evidence; and, secondly, because the expression "along" is indefinite and misleading. The witness should state in his own language what that brush does.

A. The brush K in the Sutton patent of 1895 is supported by arms H, which are actuated by a suitable mechanism and move up and forward in front of the working edge of the stretcher-bar and then recede down below the stretcher-bar, brushing down the fur and releasing the hair in order that they may be operated upon.

X Q. 136. Do I understand correctly from your answer that this brush K of the Sutton 1895 patent draws with it, when moving from the position shown in Fig. 7 to that shown in Fig. 9, the fur and hair, and that the hairs are released when the brush recedes from its contact with the pelt by the backward motion of the arms H?

A. The brush remains in contact with the fur until it has reached the limit of the length of the fur when the hair are released.

X Q. 137. Then I understand that the brush acts upon both the fur and the hair until it recedes from its contact with the fur?

A. The action of the brush on the pelt is such that it tends to separate the fur from the hair in revolving in front of the working edge, thereby releasing the hair, and after the brush has
65 reached the limit of length of hair and fur they naturally then spring forward to be removed by the knives.

X Q. 138. The hairs (by that I mean water hairs) spring back to the edge of the stretcher-bar, while the fur remains in the position where it was brought by the action of the brush K until the movable guard-comb L is brought in contact with it to hold it, is it not?

Objected to, as there is already testimony in this record that the complainants have two kinds of machines, some with an oscillating comb and some without.

A. Yes, the stiff hair naturally by their resiliency spring forward the moment they are released, while the fur still has the downward tendency produced by the action of the rotary brush upon it, and the oscillating guard-comb L would not be absolutely necessary in order to hold that fur back so that the knives would not cut the fur and damage the skin. We have also had machines that operate in this manner without the oscillating guard comb L.

Adjourned to 2 o'clock to-morrow, Nov. 19th.

NEW YORK, *November* 19, 1901.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of the witness GUSTAV CIMIOTTI resumed:

X Q. 139. I call your attention to the specification of the U. S. letters patent to H. W. Covert, No. 304,992, Sept. 9, 1884, and more particularly to the statement on page 1 of the specification, line 93, *et seq.*, reading as follows: "Every time the brush G passes over the fur at the edge of the plate E it draws over with it as much fur, together with the cutting hairs, as have been released from the blade C during one revolution. As the brush leaves the fur the hairs, by reason of their stiffness and elasticity, spring up against the cutting-blade C," and ask you to state whether the operation of the separating brush of the Sutton machine, as you have explained, is or is not such action as described in the specification of this Covert patent?

A. If the brush G in the Covert patent is supposed to be the same as the rotary separating brush in the Sutton patent, then the
66 operation is entirely different, as the rotary brush of the Sutton patent does not pull any fur and hair over the working edge of the stretcher-bar.

X Q. 140. Does not the brush F of the Sutton patent draw the

fur and hair released by the feed from underneath the guard E away from the edge of the stretcher-bar to the off-side thereof?

A. The brush F brushes down the fur and hair after it has been released from the card or rotary brush above the stretcher-bar in either patent and then brushes them down below the stretcher-bar away from the working edge, but it does not pull any fur and hair from over the stretcher-bar.

X Q. 141. What device in the Sutton machine brings the fur and hair on the edge of the stretcher-bar?

A. That is a question I cannot understand, because the fur and hair are always there on the edge of the stretcher-bar.

X Q. 142. Where does the action of the brush F of the Sutton patent commence?

A. The specification of the Sutton patent says, on page 3, line 41 *et seq.*: "The rotary separating brush is then quickly moved upward and forward and revolved in front of the skin at the edge of the stretcher-bar," and I understand from this and from the figure 3 of the patent drawings that the brush F of the Sutton patent commences to act on the edge of the stretcher-bar. Please look at figure 3 of the drawing and the quoted part of the specification of the Sutton patent in suit and state whether I am correct in my understanding that the action of the brush F of the Sutton patent commences on the edge of the stretcher-bar. The action on the fur and hair of the brush F in the Sutton patent begins immediately when it has reached a point in front of the working edge of the stretcher-bar and catches such fur and hair as has been released from under the guard E and is then brushed down to one side and below the stretcher-bar.

Defendants' counsel offers in evidence the printed copy of the specification and drawings of the United States patent to H. W. Covert, No. 304,992, Sept. 9, 1884, and the same is marked "Defendants' Exhibit Covert 1884 patent."

Complainants' counsel formally objects to the introduction of exhibits by defendants at this stage and desires it to be distinctly understood that he is not waiving his right to rebuttal testimony to these defendants' exhibits, which said rebuttal testimony he expects to take as soon as defendants have formally announced that they have closed their case.

67 X Q. 143. You testified that in the so-called Sutton machines used by complainants you have dispensed with the carding brush supported back of the rotary knife and designated in the patent in suit $D^2$ and in the second Sutton patent No. 536,742 by $D'$. Kindly state whether any change or modification or readjustment of the parts of the machine are necessary or undertaken in those machines wherein the carding brush back of the rotary knife is not used.

A. We just simply took the brush off and left the machine just in

the same condition it was before, with the exception of the brush being removed. No other changes were necessary.

X Q. 144. Mr. Charles Moser, a witness in the case of Cimiotti *vs.* William A. Hulbert, testified that the flat brush behind the knife ($D^2$ in the Sutton patent in suit and $D'$ in the Sutton second patent) made the first division; that this first division could also be made without the flat brush; that it could be made by adjusting the rotary brush so that it would do the first parting. The adjusting of the rotary brush was to be made so that it came in front of the edge of the stretcher-bar, whereas in the machines with the flat brush behind the knives the rotary brush only came within about an eighth of an inch of the edge of the fur and the stretcher-bar, and when the flat brush was not used the rotary brush necessarily had to go to the edge of the fur and stretcher-bar that eighth of an inch farther. Mr. Moser further testified that the flat brush $D^2$ of the Sutton patent in suit made a part between the fur the same as you would part your hair—it divided the fur on each side. As to the ad-ustment, Mr. Moser testified that the mechanism of the rotary brush (F) has slots in it which are held down tight by screws. By releasing the screws the brush can be put into any desired position. Will you please state whether any such adjustment as testified to by Mr. Moser was made to your knowledge with the machines constructed according to the Sutton patent in suit or the subsequent Sutton patent, as you have testified, when the flat brush behind the knife is dispensed with.

Complainants' counsel objects to the question for the following reasons:

First. There is no evidence before this court that anybody at any time has testified as stated by the examining counsel. The best evidence that somebody at some time, in some other suit, made the alleged statement testified to by defendants' counsel must be
68 proved in a different way. Either the stenographer or typewriter that heard the testimony should be called, or other legal evidence must first be introduced showing that such testimony was given.

Second. This question is objected to as there is no evidence whatever in the record what opportunities this man Moser had for observing complainants' machines.

Third. This question is objected to because the machine used by the complainants is not in issue. It is the patent with respect to which infringement is claimed.

Fourth. The question is objected to because it is involved and because it only partially states alleged statements made by Moser; the said Moser having made sketches and drawings, all of which may or may not be material, and which drawings may or may not elucidate this testimony.

Fifth. The question is further objected to because the alleged statements made by Moser have been transposed and the gist of them is supposed to be contained in the question.

With all due respect to defendants' counsel, inquisitions of this kind must be conducted with some regard for the rules of evidence, and this question is so manifestly improper that we believe the court would strike out the answer without objection on the part of complainants' counsel.

A. Mr. Moser, when he testified as he did, did *he* know what he was talking about, for the simple reason that he had no experience whatever with the machine without the $D^2$ brush, as he had been discharged by us long before that, and we eventually brought suit against him for infringing our patent and obtained an injunction.

X Q. 145. From what date about to what date was Mr. Moser employed by Cimiotti Bros. or the Cimiotti Unhairing Co.?

Objected to as immaterial and irrelevant, Moser not having been a witness in this case, and his statements in any other case are immaterial, there being no evidence that he ever made any statements in any case.

A. I do not remember the dates. I do not keep track of men I discharge.

X Q. 146. Was he re-employed again after the suit against him for infringement of your patent?

A. Yes. He came to me and begged to be re-employed, as he was in need—he had a family to support. He asked me to
69 employ him again until such a time as he might be able to pass the civil service examination and get a position in the custom house, which might take probably a year; that if I would help him out in the meantime he would consider it a favor, and I did so. He subsequently, after he had been in the employ of the custom house for some time, again started in to build infringing machines of our patent, which he finally dropped when we threatened him with suit.

X Q. 147. Mr. Moser did not defend the suit against him for the infringement of your patent, did he?

Objected to by complainants' counsel on the ground that the record is the best evidence and that the record will show any motion for preliminary injunction so argued before his honor Judge Benedict, with Mr. Hauff of counsel for the defendant Moser, opposing, and that an injunction was granted.

A. Certainly he defended it.

X Q. 148. In that undertaking wherein you charged Mr. Moser with infringement of your patent he was associated with a man by the name of Schirmer, was he not?

A. Yes.

X Q. 149. I find in your testimony in the case of Cimiotti *vs.* Karl Mischke the following question and answer:

"Q. 14. So far as you know, this patent here in suit has been respected by the trade and the public, except by the firm of Moser &

Schirmer, against whom you obtained a decree by default in the eastern district of New York, and except by Max Bowsky and Max Blau and the defendant in this suit. A. Yes, sir."

Please state whether you so testified.

A. I guess I did testify that way, that our patent had been respected by everyone with the exception of those mentioned.

X Q. 150. Was it then true that you obtained a decree against the firm of Moser & Schirmer by default?

Objected to by complainants' counsel on the ground that the decree itself is the best evidence.

A. So the record shows.

X Q. 151. Do you believe that Mr. Moser would have willfully testified falsely in the case when he was called as witness because he was sued by you for infringement of the patent or prevented from completing some machines for unhairing of skins by your threats to sue him, as you testified?

Objected to by complainants' counsel on the ground that it
70 is utterly irrelevant and immaterial and incompetent what witness believes; and witness is instructed not to answer.

A. By advice of counsel I refuse to answer.

X Q. 152. The machine described in your patent No. 240,007, of April 12, 1881, contains a stretcher-bar, mechanism for intermittently feeding a fur skin over the stretcher-bar, means for separating the water hairs from the fur, and cutters for removing the water hairs when separated from the fur, does it not?

A. No, I do not know, as the patent says "means for separating the fur."

X Q. 153. I understand that the patent describes a bellows and mechanism for operating it for separating the water hairs from the fur, but I described it by the word "means" simply because I did not consider it necessary to specifically point out what means. You may include in your answer, if you wish to do so, what specific means there are employed in the machine of the patent for separating the water hairs from the fur.

Complainants' counsel objects to the use of the word "separating" without qualifications of any kind and asks counsel to state what kind of separation he refers to; the separations of the Covert patent, for instance, or the so-called separation in defendant's machine.

Defendant's counsel states for the enlightenment of complainants' counsel that he does not mean either separation; that his question concerns itself solely with the Cimiotti patent No. 240,007, of April 12, 1881, and with nothing else.

A. My answer is that the patent drawings and specification speak for themselves. I cannot explain it any better than that patent explains it.

X Q. 154. Please look at Fig. 1 of the drawing of the patent men-

tioned in my preceding question and state whether the machine as shown in the drawings contains a stretcher-bar which is designated B in the drawing?

A. Yes.

X Q. 155. Please state whether the machine as shown in the drawing does or does not contain feed rolls designated C and C′, which are intermittently operated by a suitable pawl and ratchet mechanism so as to move the skin forward over the edge of the stretcher-bar at the proper time.

A. Yes.

X Q. 156. Please state whether the machine as shown in the drawing does or does not contain a bellows designated D and mechanism designated E and *a* for operating the bellows; and whether the bellows does or does not produce a blast of air directed upon
71 the strip of fur skin on the edge of the stretcher-bar so as to separate the fur from the water hairs by bending the fur to both sides of the stretcher-bar, while the water hairs, being stiffer, remain standing on the working edge of the stretcher-bar.

A. Yes.

X Q. 157. Please state whether the machine as shown in the drawing before you does or does not contain cutters G and G′ which are operated to remove the water hairs when separated from the fur on the working edge of the stretcher-bar.

A. Yes.

X Q. 158. You have testified that in your factory, I understand, you have several machines running there all the time that have no oscillating guard combs nor the $D^2$ brush. Are those machines of the character that you designated as Sutton machines? I mean machines built according to the patent in suit or the subsequent Sutton patent?

A. They are built according to the patent in suit.

X Q. 159. Since when do you have these machines running all the time?

A. I do not remember.

X Q. 160. How many of such machines do you have running of this kind?

A. We have three running so that one man is engaged on three of them.

X Q. 161. What part of the machine described in the Sutton patent in suit do you designate by the term "oscillating guard comb"? Kindly point it out in the drawing of the patent which I now hand you.

A. The device which I designate the oscillating guard comb is the device designated G in Fig. 2 and Fig. 3 of the Sutton patent in suit.

X Q. 162. I call your attention to page 2, line 64, of the Sutton patent in suit, which refers to the device designated G in the drawing, and call your attention to the fact that this device is described therein as an oscillating guard bar provided with rubber wipers *g*, and

ask you to say whether you consider such device, the same thing as a comb?

Objected to by complainants' counsel on the ground that the witness is not an expert in the interpretation.

A. I consider it the same in its functions.

X Q. 163. Please look at Figs 7, 8, and 9 of the drawings of the Sutton 1895 patent, and more particularly the feature therein marked L, and referring to lines 84 *et seq.*, page 2, of the specification, where this feature is described, please state whether or not that feature is the oscillating guard comb which you referred to in your testimony when stating that in three of your machines these oscillating guard combs are omitted.

72 A. That is the same guard comb.

X Q. 164. Mr. Ferdinand Cimiotti, Jr., testified in the case of Cimiotti Unhairing Company and John W. Sutton against William A. Hulbert that such oscillating guard combs are used on the machines operated in the Cimiotti factory instead of the rubber wipers, which I understand to be the rubber wipers mentioned in the specification of the Sutton patent in suit. Is that correct?

Objected to by complainants' counsel as incompetent testimony, and the witness is instructed not to answer.

Complainants' witness is again testifying as to what somebody is supposed to have testified in another suit, and that is not a proper way to obtain evidence; that the fact may or may not be material, and that it is immaterial who said so in another suit.

A. By advice of counsel I refuse to answer.

X Q. 165. Mr. Ferdinand Cimiotti Jr., also testified in the case above stated that you had only one machine there running without the oscillating guard comb, whereas you stated in your preceding testimony that you had three such machines. Is Mr. Ferdinand Cimiotti, Jr.'s, testimony correct?

Same objection. Same instruction to witness.

A. By advice of counsel I refuse to answer.

X Q. 166. Mr. Ferdinand Cimiotti, Jr., also testified that you had this machine run off and on at different times since some time in 1900. Will that aid you in stating the time more precisely, since what time you used one or more such machines without the oscillating guard comb?

Question objected to as being testimony by defendants' counsel. Witness instructed not to answer.

A. By advice of counsel I refuse to answer.

X Q. 167. When asked why the machine is not used always Mr. Ferdinand Cimiotti, Jr., answered in his testimony: "Well, it makes it a little safer to run with the oscillating guard comb; it doesn't require quite so much attention on the man's part if we have the oscil-

lating guard comb." Do you agree in this view with Mr. Ferdinand Cimiotti, Jr.?

Same objection. This method of examining the witness is so manifestly unfair that witness is again instructed not to answer.

A. By advice of counsel I refuse to answer.

X Q. 168. Mr. Ferdinand Cimiotti, Jr., testified that he was foreman of the Cimiotti Unhairing Co. for seven years past at the time of this testimony, which was taken on the 10th day of June,
73 1901. Can you state whether this testimony is correct or not?

Same objection. Same instruction to witness.

A. By advice of counsel I refuse to answer.

X Q. 169. How long was Mr. Ferdinand Cimiotti, Jr., connected with the Cimiotti Unhairing Co.?

A. About seven years.

X Q. 170. Was he employed as foreman in the shop or superintendent?

A. Yes, sir.

X Q. 171. Did he have access to all machines which are operated on the premises?

A. Yes, sir.

X Q. 172. In the specification of the Sutton 1899 patent it is stated on page 1, line 26 *et seq.*: "In connection with the lower brush is used a reciprocating guard comb, to which the required motion is imparted after the lower brush had accomplished its work. The object of this invention is to simplify the construction of the pelt-plucking machine by using * * * segmented brushes having guard combs at their ends." * * * Please look at the drawing of the patent and say whether in that machine or those machines in which you said you do not use the oscillating guard combs you use such segmented brushes having guard combs at their ends as shown in the drawing of that patent.

Objected to by complainants' counsel because this witness is not a patent expert. There is no evidence in this record or anywhere that the defendants are using any machines like that shown in the drawing, and such an inquiry is improper.

Defendants' counsel states that the whole cross-examination of this witness so persistently resisted by complainants' counsel has the sole object in view to ascertain the construction of Sutton machines which the witness in his direct-examination stated are used by complainants and which it is asserted by complainants' counsel and also by the witness are constructed strictly in accordance with the patent in suit herein.

It is with the end in view to establish more precisely to what extent this testimony is true or correct that all the questions which have been propounded heretofore and objected to by complainants

counsel, and which the witness by advice of complainants' counsel refused to answer, were asked.

A. As I testified to before, I had no knowledge of this patent or its construction until I saw a copy of it here put in evidence
74 by defendants' counsel. We have machines constructed in accordance with this Sutton 1889 patent.

Adjourned to Saturday, Nov. 23rd, at 11 a. m.

NEW YORK, *Nov.* 23, 1901.

Met pursuant to adjournment.
Present: Counsel as before.

The witness GUSTAV CIMIOTTI is produced for further cross-examination and cross-examination of this witness is proceeded with as follows:

X Q. 172. What kind of a shop did Mr. Sutton have and where was it located?

A. It was located on W. 29th St. It was a regular machine shop.

X Q. 173. Was it the same shop where Mr. Sutton made his various experiments and constructed machines and other devices which he had patented?

A. Yes.

X Q. 174. Do you still use the air blast machines built according to your patent No. 240,007 for unhairing of seal skins?

Objected to as utterly immaterial to the issues. The witness can use as many different kinds of machines for unhairing seal skins as he has a legal right to use.

The witness is directed that he need not answer this question if he thinks it is in any way unfairly prying into his business.

A. Yes.

X Q. 175. In answer to Q. 50 you said that the Sutton rotary separating brush brushes down the fur to one side. Please state whether I am correct in understanding from this answer that the brush brushes the fur to the side away from the stationary card E or some other guard device on the feed-side of the stretcher-bar.

A. Yes, down on the off-side of the stretcher-bar opposite to the side where the card E or other guard device is.

X Q. 176. When you say Sutton rotary separating brush which brush do you mean? Do you mean the brush F of the Sutton patent in suit, or do you mean the brush F of the 1895 patent; or do you mean the brush K of the Sutton 1895 patent?

A. I had in mind or I meant the brush F of the patent in suit—1888.

X Q. 177. Please look at the drawing I show you and tell me

what kind of a brush you use in the place where the brush
75 designated F in this drawing is located. That is, the brush located on the on-side of the stretcher-bar in the place where in the Sutton patent in suit the card E is located.

Objected to as utterly immaterial to the issues and as irrelevant, the witness having testified that he uses machines like the patent in suit and the suit being for infringement of that patent and not of the 1895 patent.

A. The patent shows what kind of a brush we use.

X Q. 178. I wish to know from you what kind of a brush, whether a hard or a soft bristle brush; whether a full or segmental brush; and whether made of horse hair or pig bristles, or any other material that you use on the machines which you testified were originally constructed according to the patent in suit; and where you substituted such brush as shown and described in the Sutton 1895 patent for the stationary card E of the Sutton patent in suit.

Complainants' counsel objects to the question as utterly irrelevant, and as a pure fishing excursion to obtain matter for defence if by any possibility the defendant should be sued on the 1895 patent. The function of the stationary rotary brush of the Sutton patent of 1895 is obviously and admittedly not the function of the movable rotary separating brush in issue in the patent in suit. The witness is instructed that the question is utterly immaterial and irrelevant to the issues and that his oath does not require him to answer it, and is directed by complainants' counsel not to answer the question.

Defendants' counsel asks the witness to answer or state whether he refuses to answer the question.

A. I refuse to answer the question by direction of my counsel.

X Q. 179. You know, Cimiotti, how this brush referred to in my preceding question is constructed and of what nature the brush is, do you not?

A. Yes.

X Q. 180. You have testified in the case of the same complainants against William A. Hulbert in the spring of this year, have you not?

A. I do not remember.

X Q. 181. The transcript of the testimony in the case referred to in my preceding question shows that you have testified on the 15th day of April, 1901, and on the 18th day of April, 1901. Please state whether these dates are to your recollection or knowledge correct?

A. I suppose if it is on the record it must be correct. It ought to be correct.

76 X Q. 182. Please explain what treatment of fur skins is understood by the term "dressing."

A. That means the tanning or dressing of the leather or skin.

X Q. 183. Does it not include also the pulling out of the long master hairs or shearing of the fur skins?

A. That is a separate branch of the dressing business.

X Q. 184. Please explain the difference between a raw and a dressed fur skin.

A. The difference is that the one is raw and the other is dressed.

X Q. 185. What is necessary to be done to change a raw fur skin into a dressed one?

A. Now you are asking me something that I don't know anything about. I am not a dresser of furs or raw skins.

X Q. 186. I understand that the fur skins which are subjected to the unhairing process as we have in consideration here must have been previously dressed. Is that so?

Objected to as utterly immaterial to the issues whether the machine of the patent in suit may be employed for unhairing dressed fur skins or undressed fur skins or anything else in the world.

Defendants' counsel requests counsel for complainants not to interfere with the examination of the witness and if he has any objections to make to the questions to state them, and not to advance any of his theories or knowledge during the course of his examination.

A. The question is not well defined. I cannot answer that.

X Q. 187. Do you unhair any raw skins—I mean skins which are not dressed,—as the term is understood in the trade—on the machines constructed according to your patent No. 240,007, or according to the Sutton patent in suit herein, or according to the Sutton 1895 patent?

A. No.

X Q. 188. All the skins that you unhair on any of these machines are previously dressed, are they not?

Same objection.

A. Yes.

X Q. 189. When you undertake the unhairing of any fur skins for the trade you become responsible for the value of the fur skins and for any damage that may be done to them in the course of unhairing, are you not?

Objected to as irrelevant, and the witness is instructed that
77 he need not reveal to defendants' counsel any such financial details of his business unless he chooses to do so; that his oath does not require any such revelation.

A. I refuse to answer.

X Q. 190. You have testified that there is a danger involved in using an automatic power machine like the machine set forth in the patent in suit for unhairing of seal skins, because it cannot be stopped in time to prevent injury to the fur if the parting should not be effected properly, and that for this reason you continued using the

air blast machines according to your patent No. 240,007 for unhairing of seal skins. Please state whether in case you had used such Sutton machines for unhairing of seal skins and the fur had been damaged by reason of such accident as you related, by cutting the fur, you or your concern would have been held responsible to the owner of the seal skin for the value thereof or to the extent of the damage done to the fur skin by such accidental cutting.

The witness is given the same instruction as was given him in regard to the last question.

A. I refuse to answer.

X Q. 191. Did the Cimiotti Unhairing Company obtain an assignment of the license or agreement with John W. Sutton regarding the making and using of such machines as described in the Sutton patent in suit?

Objected to as uncertain, vague and immaterial. The bill of complaint pleads a license from Sutton to the Cimiotti Unhairing Company direct and not through mesne assignment. If defendants' counsel refers to any other document than the one pleaded, the question is clearly immaterial.

A. We are operating under the license obtained from John W. Sutton in 1888.

X Q. 192. When you say "we are operating," do you mean the Cimiotti Unhairing Company?

A. Yes.

X Q. 193. That agreement was made between Cimiotti Bros. and John W. Sutton, was it not?

Same objection.

A. The first agreement in 1888 was made between Cimiotti Bros. and John W. Sutton.

X Q. 194. Was this agreement, 1888, transferred to the Cimiotti Unhairing Company, or was a new agreement made between John W. Sutton and the Cimiotti Unhairing Company with respect
78 to the patent in suit or other matters that might have been regulated by the agreement of 1888 between the Cimiotti Bros. and John W. Sutton?

A. I think there was a new agreement made necessary, as the company had been organized, although the conditions therein remained the same as far as the license is concerned.

X Q. 195. I understood you to testify that the agreement of 1888 between John W. Sutton and the Cimiotti Bros. related to all prior patents of John W. Sutton for unhairing machines and also included all future invention, and that it provided for payment of a royalty to him by the Cimiotti Bros. on all fur skins, whether unhaired on any machines invented or patented by him or on those air blast machines constructed according to your patent No. 240,007, which the Cimiotti Bros. were then using in their business and which I

understood you to testify you are still using for unhairing of seal skins. Is that correct?

Objected to as immaterial, for the reason that it has nothing to do with this case whether the Cimiotti Unhairing Company is the owner or licensee under other patents or not, this suit being for infringement of patent No. 383,258.

Complainants' counsel takes the opportunity here to protest against this long-drawn-out cross-examination upon points having nothing to do with the case, and gives notice that in the absence of other relief he will at the proper time move for a diminution of the record by striking out such questions, answers and objections in this deposition as shall clearly appear to be irrelevant to the issues.

Defendants' counsel answers that if complainants' counsel will kindly confine himself to briefly stating the objections, instead of testifying himself and arguing the case at the same time during the examination, there will be no necessity for moving for diminution of the record; and, furthermore, that the cross-examination of this witness is extended solely on account and by reason of the immaterial and irrelevant objections made by complainants' counsel to almost every cross-question propounded to this witness.

Complainants' counsel answers that he has set forth the reasons for his objections somewhat at large for the purpose of more thoroughly instructing defendants' counsel and, if possible, showing him the irrelevancy of this line of examination and inducing him to discontinue the same.

79 Complainant's counsel further objects to this kind of question as improper, for the reason that what the witness has actually testified to is already on the record and the understanding of defendants' counsel has nothing to do with the case, and the witness cannot possibly know what his understanding is.

A. I have answered that question before.

X Q. 196. I know very well that you have testified to the matters stated in the question. The object of the question is to have you say whether the concise statement of your testimony as given in the question is correct or not. Please state whether it is or not.

A. Yes.

X Q. 197. Is the new agreement of January 1, 1897, between the Cimiotti Unhairing Company and John W. Sutton made in writing?

A. Yes, it is a written instrument.

X Q. 198. Was it recorded in the United States Patent Office?

A. I would have to ask my counsel about that.

X Q. 199. I presume it was made in two originals, was it not?

Complainants' counsel objects to this line of examination also, and states that if he deems it necessary to his case the license pleaded in the bill of complaint will be properly introduced in evidence before the close of the *prima facie* case, and that until that time it has nothing to do with the case.

A. I suppose so.

X Q. 200. Does the Cimiotti Unhairing Company have one of the originals of this agreement with John W. Sutton?

Same statement and objection as immaterial.

A. Yes.

X Q. 201. Where is it?

A. I think that it must be in the possession of my counsel.

X Q. 202. By the designation "my counsel" do you mean Mr. Louis C. Raegener, of Dickerson, Brown & Raegener, the solicitors for complainants in this case?

A. Yes.

X Q. 203. Is Mr. John W. Sutton still living in Brooklyn at 31 Wyckoff St.?

A. I do not know positively what place he lives at.

X Q. 204. When did you see this agreement between Mr. Sutton and the Cimiotti Unhairing Company for the last time?

A. In February 1901.

X Q. 205. Where was it then?

A. At the Cimiottis' office.

X Q. 206. What did you do with it then?

80 A. I asked the bookkeeper to take it out of the safe for the purpose of delivering it to our counsel, Mr. Raegener.

Signature waived.

Defendants' counsel calls for the production of this agreement between the Cimiotti Unhairing Company and John W. Sutton and gives notice that unless this agreement is produced he shall move that all testimony of this witness relating to the agreement be stricken from the record.

Defendants' counsel also reserves the right to have this witness produced for further cross-examination after the production of this agreement.

COMPLAINANTS' COUNSEL: That is all?

DEFENDANTS' COUNSEL: Yes.

Adjourned until further notice or agreement.

Circuit Court of the United States for the District of New Jersey.
In Equity.

CIMMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON
vs.
AMERICAN FUR REFINING COMPANY, CHARLES A. WATSON, George W. Frayne, and Max Mischke.

*Complainants' Rebuttal Proofs.*

Testimony in rebuttal taken on behalf of complainants at the office of Dickerson, Brown & Raegener, 141 Broadway, New York city, March 12th, 1902, at 11 a. m., before H. D. Oliphant, Esq., examiner.

Present: Louis C. Raegener, Esq., of counsel for complainants; Henry Schreiter, Esq., of counsel for defendants.

CHARLES E. FOSTER, a witness called on behalf of the complainants, having first been duly sworn, in answer to questions put to him by Mr. Raegener, testifies:

Q. 1. What is your name, age residence and occupation?

A. Charles E. Foster; age, sixty; I reside at Washington, D. C.; I am a patent attorney and mechanical expert.

Q. 2. State what experience you have had in the practice
81 of your profession qualifying you to testify as an expert in regard to mechanical structures?

A. I have been engaged in the practice of my profession for over forty years and for over twenty years have been frequently called upon to testify as expert in causes before the United States court. I am a practical draftsman and a practical mechanic, familiar with the tools ordinarily used in wood working and metal working. I am a regular member of the American Society of the Mechanical Engineers and for several years was editor of the patent department of the American Exchange and Review. I have prepared and prosecuted many thousands applications for letters patent and have frequently been called upon to make extended searches as to the state of the art both in libraries and in public departments and among the records of the United States Patent Office. I have had, ever since I was old enough to handle a tool a great deal of experience in work shops, and have had a small shop of my own. During the past two years I have expended several thousand dollars in work in my own shop. My shop is provided with ordinary tools, and I have constructed and aided in the construction of a great many different kinds of machines and apparatus, and have spent a great deal of time in work shops in testing and examining the operations of mechanisms of different kinds, many of which have been

constructed by me or others from working drawings prepared by myself, and I have a general acquaintance with the usual text books relating to mechanisms of the arts and the progress of the arts.

Complainants' counsel offers in evidence certified copy of file wrapper and contents of the abandoned application of Francois Lambert and Joseph Kokesch, and the same is marked "Complainants' Exhibit Abandoned Application."

Q. 3. Have you read and do you understand the deposition of Max Mischke?

A. I have.

Q. 4. Have you read and do you understand the Sutton patent in suit?

A. I have read the Sutton patent, and I think I understand the same.

Defendants' counsel objects to the question and answer on the ground that it is not proper evidence in rebuttal, and gives timely notice that he shall move to have all the testimony relating stricken from the record.

Q. 5. Have you read and examined the British Lake patent?

A. I have.

82 Q. 6. Have you read and examined the Castle patent No. 213735, the Covert patent No. 304992, the Simonson and Schott patent No. 306185 and the Kokesch patent No. 195826?

Defendants' counsel objects to the question as far as it relates to the Castle patent No. 213735, to the Simonson and Schott patent No. 306185, and to the Kokesch No. 195826 as not proper testimony in rebuttal, none of these patents having been introduced in evidence and in no testimony whatever relating there- being contained in the record.

Complainants' counsel says that he expects to show the materiality and relevancy of the Castle and the other patents referred to, and their bearing upon the prior state of the art in view of defendants' exhibits the Lake patent and the Covert patent.

A. I have.

All of the foregoing patents except the Covert offered in evidence and marked "Complainants' Exhibit."

Defendants' counsel object to the introduction of these patents in evidence as immaterial and irrelevant and as improper evidence in rebuttal, for the reason stated above.

Q. 7. Have you examined "Complainants' Exhibit Defendants' Machine"?

A. I have.

Q. 8. You understand do you not that the exhibit last referred to is one in all respects like twenty-five others at defendants' shop?

A. That is my understanding, but not based upon any comparison by myself.

Q. 9. You understand likewise do you not from the testimony of Mr. Mischke that in "Complainants' Exhibit Defendants' Machine" and in the defendants' machines that the stretcher bar rises as it moves toward the knives about 3-16 of an inch, and that the fur is brushed below the working edge of the stretcher bar about ¼ of an inch for the purpose of preventing the fur from being cut, and that in a one brush machine of this type as compared with a two brush machine, it is necessary to lower the brush one quarter to one-half an inch to shorten the backward and forward motion of the bar, and to turn the cam forward; and that the lower setting of the brush benefits the work?

Objected to as leading.

A. That is my understanding.

Q. 10. The witness Mischke has testified and it is contended by defendants' counsel that "Complainants' Exhibit Defend-
83 ants' Machine" and the twenty-five other defendants' machines are Lake machines, that is to say, machines built in accordance with the drawing and specification of "Defendants' Exhibit Lake English Patent." Is this likewise your opinion, and if not, why not?

A. I do not consider that the Exhibit Defendants' Machine can properly be called a Lake machine, that is, a machine corresponding to that set forth in the Lake British patent, because, in my opinion, upon investigation of the construction and the operation of defendants' machine, as I have seen it on different occasions at the establishment of Messrs. Cimiotti, the said defendants' machine is not built in accordance with the drawings and specifications, and does not operate in accordance with the specification of the Lake patent.

Referring to said Lake patent, I find that the title and preliminary portion thereof sets forth the object of the invention to be "the removal of the stiff hairs from fur or dressed skins." The term "removal" at the date of the said letters patent was one rather loosely employed, but as used prior to such date in connection with any kind of mechanism operating automatically, referred to either the plucking of the hairs by their roots from the skin, or the cutting of the hair above the skin, and very frequently and generally to the cutting of the hair at a point just below the upper surface of the compacted fur, as set forth in the Castle patent 213735 and the Kokesch patent 195826. The prior art recognized by the patentee was the common method of performing the removal of the stiff hairs by holding the skin bent over the finger of one hand, blowing down upon the skin, thereby deflecting the fur to both sides, leaving the hairs standing, and then clipping the hairs as short as possible by means of scissors. As set forth by the patentee, such process was tedious, laborious, required repeated blowing and clipping, and the inven-

tion specified to supersede this hand method is set forth in the patent as a machine organized so "as to perform the work automatically and rapidly." I thus find that the purpose of the patentee was to make a machine that would perform the same operations that had been performed by hand, as nearly as practicable by the use of a machine. There is no statement in the patent of a purpose to operate upon the material in any different manner from that before pursued in hand operations. The patentee states that the invention consists chiefly in a combination of parts comprising a holding device for supporting the skin, a brushing or combing agent for drawing the fur away from the hairs, and a clipping or removing device to remove them when so separated, from the surrounding fur.

84 Bearing in mind that state of the art recognized in the patent, I find that the terms "drawing away" and "so separated" as used in this part of the specification referred —or meant such drawing away and such separation as had previously been effected in the hand operations. I recognize that such separation is merely the spreading aside and away from the hairs, more especially from the upper portions of the hairs, of the fine fur to the extent required for such a removal as was then known in the art, and effected in hand operations, to wit, the clipping of the upper portions of the standing hairs to the extent permitted by the character of separation secured.

The description of the machine itself and its operations is accompanied by a drawing of the side view in Fig. 1 and a part side view of Fig. 2 purporting to show the parts in two different positions, but which is so crude in character that I cannot recognize it as an illustration of a practical machine, more especially as in one of the features at least it is obviously inoperative in the manner in which it is illustrated, that is, the feeding of the material between the rolls $M^1$, $M^2$, which in the construction shown, would carry the material in the reverse direction from that desired. This makes it evident that the drawings of the British patent could not have been made from an operating machine, but were merely theoretical. Without going into every detail of construction, I will refer to the main parts of the machine and to their described operations, noting that the drawing is said to be an illustration on a scale about ½ the actual size. The bar B is said to have an upper edge slightly rounded to resemble the form of a finger over which the skins are turned as in the hand process, and from the drawing and this description, I judge that the size of the bar B in a machine three times the size of the drawing would approximate at its edge that of the finger, so that the skin in passing over it has a curve of quite an extended diameter. The bar is carried by uprights C which vibrate back and forth, and these uprights are so supported as to have a rising motion at one part of the operation, as I will hereafter refer to. At the upper part of the machine are the cutters E, $E^1$, and what are termed "fur opening brushes" or "separating brushes" or "brushes" or "brushing rolls." Two of these are shown in the

drawing arranged at different heights, designated by the letters D, D¹, and shown as rotating in the same direction; and the specification sets forth that the brush designated D furthest from the cutters may be dispensed with; and from the statement on page 2, lines 45–50, I find that it is stated that these brushes
85 "draw the fur on the skin over the edge of the bar B and away from the compression plate, and when the fur is so drawn the stiff hairs will stand up by themselves, as indicated in the drawing, and in this condition are carried over to the cutters E, E¹, where they are removed." It is stated as regards these brushes, that they "are covered with card-clothing, bristles, or teasles," and I understand from this that the operations to be performed by these brushes are operations of the character that are performed by card-clothing, by bristles or by teasles. Referring to the illustrations of the brushes in the drawing accompanying the patent, I see that the covering illustrated is approximately about 1-20 the diameter of the brushes, which would be about the proportion that ordinary card-clothing would have in brushes of the proportions shown. The card-clothing as then well known consisted of fine bent wires projecting at an angle through or from a backing of flexible material, generally leather, and acting in the same manner as teasles in operating upon cloth. I have had a very extended experience in connection with cloth finishing machinery, embracing the operations of teaseling in what are now termed "napping machines," and I thoroughly understand the operations of the teeth of the teasles or bristles or cards in this connection. No one familiar with the art, but would understand from the reference to this character of card clothing that the purpose was to act upon the mass of fur lying upon the rounded edge of the stretcher bar so as to pick into the mass, catch hold of the individual fibres, untangle them from each other and from the stiffer hairs, and draw them away from these hairs and to one side so as to leave the hairs standing, or permit them to assume a standing position. It is evident from the specification that this untangling of the fur was the purpose of the inventor as he uses the term "combing" line 19, page 1, and the expression "combing device for opening the fur" in claim 1, and from the fact also that the roller D, D¹ as illustrated correspond to those provided with ordinary card-clothing.

Recess.

Afternoon session.

Such an operation would effect about the kind of opening or separation that is effected when the fibres are blown to one side by the breath. Probably no better illustration of this kind of separation is needed than is shown in Simonson and Schott U. S. patent 306185, where the skin curved over a bar I approximating the size and shape of the finger, is shown as separated or carried away by the
86 downward blast from the nozzle $m^2$ leaving the hair standing so as to be cut by the cutters which remove the upper portion

of the hair. This is further evident from the use of the expression that the bristles, teasles or card-clothing have the effect "to draw the hair on the skin over the edge of the bar B and away from the compression plate and when the fur is so drawn the stiff hairs will stand up by themselves," lines 47–50, page 2, Lake patent. This is just the effect that teasles (which have small fine hooks on their ends) or the teeth of card-clothing which penetrate and then draw out the fibres of the mass, or even short stiff bristles, would secure in acting upon the material lying over the rounded edge of the stretcher bar, that is, the fur will be drawn away from the compression plate (which is the plate $K^2$) that lies upon the mass of the material on the on-side; that is, the side towards the cutters. So far as this portion of the specification is concerned, I believe that one skilled in the art of the Lake patent would have no difficulty in understanding the purpose of the patentee. When, however, I come to the description of the operation of the parts as set forth in the Lake patent, I find it impossible to arrive at any definite conclusion as to what operation was intended or what the patentee meant. I find that the difficulty results as much from ambiguities and insufficiencies in the description as from any incongruity in the drawing. I note, however, that the operation of the parts differs according to the direction in which the crank shaft G is turned, because if turned in one direction the frame C is elevated at one period of its vibration, while if turned in the opposite direction the elevation will occur at a different period of the vibration. There is no statement or indication of the patent by which I can know in what direction the patentee proposed to turn the shaft. I note, however, that it is stated that the shaft $C^1$ "is partially revolved," and then that "the shaft $C^1$ which by its partial rotation causes the uprights C to gradually descend, etc."

Whether it was the purpose of the patentee to rotate the shaft continually in one direction, or to rock it, it is rendered by no means clear by these statements; and if the shaft first rocks in one direction and then reverses, the effect is different from what it would be if the shaft rotated continuously in either direction.

The specification states that the uprights C gradually descend as the bar moves under the brushing roll $D^1$, but it does not state whether this descent occurs as the bar moves in one direction or when it moves in the opposite direction. There is a further statement that "thus it describes a curve like a concave to the
87 roll," but there is no antecedent to the word "thus" which will show whether this concave movement occurs when the bar is directly below the bottom of the roll or at one side or other of the roll, or whether on approaching of the roll from one side or the other, or receding from the position below the center of the roll in either direction; and I am consequently left entirely in the dark as to the patentee's purpose. I, therefore, find that the description is so vague and insufficient that different theories may be predicated upon it, but nothing is certain. The first clause of page 3 terminates with the statement "by such a construction only one revolving brush

may be required, but two have been found preferable," and referring to the meaning of the term "such a construction" I can only understand that this means that by the use of two brushes or one brush, the patentee is able to effect what he says is "a longer or shorter brushing action." Except the specification is thus interpreted reference to longer or shorter brushing action would be unintelligible because no adjustments or means of adjustment are described or shown, and because there is absolutely nothing in the specification or drawing that could secure a longer or shorter brushing action except the change from one to two brushes, or *vice versa*. As stated, later in the description, if one brush is to be removed "the one at D or that farthest from the cutters, may be dispensed with." Under many circumstances such adjustments as are in ordinary machines might be assumed as intended by the patentee to be used for varying the time of action; but such an assumption is prohibited by the description of the Lake patent which states that the longer or shorter brushing action is obtained "in this manner" and "by such construction" and the terms "by such construction" is in a clause which sets forth that one or two brushes may be used or required. Further, the drawing illustrates a frame of such a construction that the bearings for the rolls are of necessity permanent fixed bearings incapable of adjustment.

As a brief summary of my view on the Lake patent, I would state that it bears on the face the evidences of being a mere paper patent illustrating a theoretical purpose, but not such a drawing or description as would ever be the result from describing or illustrating the operations from a practically operating structure. It gives no such information as to enable any one to know with certainty either the construction, adjustment and timing of the parts in actual operation, and no one, in my opinion, could from the said drawing and description construct a practically operative machine without supplying the omissions and remedying the inaccuracies
88 of the Lake drawing and descriptions, and by the exercise of invention.

Assuming, however, that the parts of the machine are adjusted to secure some kind of an operation, in no manner specified in the description or drawings, then the effect so far as the unhairing is concerned, to carry out the purpose expressed in the specification, would be to draw the fur aside and away from the compression plate to effect some kind of an opening such as that secured by the ordinary hand treatment, in which case the cutters could only remove the upper portions of the hairs without shearing down close to the skin.

If I assume that only the roller $D^1$ is used, the only change suggested in the Lake specification, I fail to see how it would be possible to operate upon the fur to more than brush it or draw it to one side or the other, but how this could be done in an effective manner is not set forth. Assuming two rollers to be used, the manner in which the stretcher bar is presented to the roller D could

not, in my opinion, result in drawing away from the compression plate more than part of the fur, and as the patentee does not suggest any reduction in the extent of travel of the stretcher bar when one roller is substituted for two, this would defeat the result of brushing even a portion of the fur, which would inevitably recover its position as a result of such extended movements of the bar.

With the above understanding of the construction of the Lake patent and comparing the defendants' machine therewith, I find that (as to construction and any possible operation be understood from the Lake description,) the defendants' machines are not the machines of the Lake patent. For instance, in defendants' machines the skins are fed towards the brushing rolls, in the construction of the Lake patent, this operation is reversed. In defendants' machines the single brushing roll employed is not covered with a clothing card or bristles or teasles, but in a metallic brush having long flexible teeth over ½ an inch in length which act as wiping action and not with a drawing action as in teas-ing. In defendants' machine the end of the connecting rod F is pivoted inside the groove of the cam at the end of the shaft G, while in the Lake construction it is pivoted outside the groove. In defendants' machines the cam on the shaft G is set upon the shaft a number of degree further in the direction of the movements of the hands of a watch than in the Lake machine thus altering the timing of the parts. In defendants' machines the stretcher bar never passes beneath the brush-
89 ing roll, while in the Lake it travels back and forth beneath the roll $D^1$, and in both directions, even if but a single roll is used. In defendants' machines the single roll arranged in the position of the roll $D^1$ is set lower than that roll, and thus in connection with the change in the character of the roll, substituting long flexible wires for teasling teeth, secures a wiping action carrying the fur down on the off-side of the stretcher bar with entirely different effect from what possibly could be secured in the construction shown in the Lake patent. In defendants' machine the stretcher bar is made with a comparatively sharp edge which naturally tends to facilitate the separation of the fur, while in the Lake machine the stretcher bar has a rounded edge which does not tend to secure this result.

I find that defendants' machine is one in which the skin is so presented to the single roll at the position $D^1$ as to secure something like the result which should be secured by presenting the skin only to the roll D in the Lake machine. There is no warrant for this in following the description of the Lake patent. Where the Lake patent prescribes the dispensing of one brushing roll, it states that the roll at D the furthest from the cutters is to be dispensed with. There is no statement, however, that the functions of the cam on the end of the shaft G and the eccentric bearings in the frame A with the connecting parts are to be dispensed with, or that in such case the stretcher bar is not to have that gradually descending movement under the brushing roll $D^1$ describing a curve or concave, but in

defendants' machines the stretcher bar is not carried under the single roll used, but is merely brought to one side of the same. As described by Mr. Mischke, the lifting action is limited in defendants' machines to the time when the stretcher bar is at one side of the brushing roll, and this therefore differs from the described action of the Lake patent, which requires that this bar shall move under the roll D'.

Even assuming the same elements in both machines of the Lake patent and defendants' machines (which assumption is not correct because of the changes I have stated) the timing and arrangement and degrees of movement are so changed that it would be a misnomer to term the defendants' machine, Lake's machine, for in fact they are other and different machines, different in construction, proportioning of the parts, timing of the operations, and results upon the skins. In examining the defendants' machines I cannot but feel that Mr. Mischke has embodied therein the construction and mode of operation of the Sutton patent, that is, taking
90 the elements or some of the elements of the Lake machine as a basis, with the knowledge of the construction and operation of the Sutton machine he has imported into the structures which he has made, the invention of the Sutton patent. I understand that Mr. Mischke has been for many years familiar with the art and engaged in litigations connected with the Sutton patent, that he has become perfectly familiar with the Sutton patent, its proposed construction and operation, and with the operations of the machines made thereunder, and that he has made different machines more or less like that of the Sutton patent, and it would be the most natural thing in the world having this knowledge and in endeavoring to construct an operative machine under the Lake patent at this late date to insensibly supply the deficiencies of the Lake structure, and in producing an operative structure to make changes here and there in the machine, remedying its defects by supplying that which was derived in the first place from the Sutton patent. This might have been done by Mr. Mischke with every purpose in the world to be fair, because it is extremely difficult for a mechanic in constructing a machine from a description and drawing, in the endeavor to make it operative, not to supply factors derived from his own prior knowledge. I am the more led to this conclusion from the fact that I find in defendants' machines just those features of the eighth claim of the Sutton patent which go to convert the Lake machine into an operative machine, which features are not set forth in the Lake patent itself. Thus, in each of defendants' machines there is a stretcher bar. This is not fixed, but I do not regard this as material in view of the fact that the same result may be secured whether the bar moves to the brush or the brush to the bar, these being recognized equivalents in the art, if I am to consider that the Lake patent constitutes a part of the art where such a reversal is set forth on page 3, lines 30–33.

Each of defendants' machines also has means for feeding the skin

over the stretcher bar. It also has what is the equivalent of the stationary card above the stretcher bar which is a compression plate, having a spring bearing upon the skin and acting in this respect like the yielding teeth of a comb and set away from the edge of the bar so as to tend to hold down the fur but permitting the hairs to spring up as they pass to the edge, and to this extent separating them and facilitating the subsequent operations. There is also a rotary separating brush. Inasmuch as the parts are arranged so that the stretcher bar stands approximately vertical in defendants' machines the rotary separating brush is not below the
91 stretcher bar, but it acts upon the same side of that bar in brushing down the fur as in the Sutton machine, that is, it acts upon the same side as would be the case in the Sutton machine if the stretcher was arranged nearly vertical. There is also, the same action which results when the rotary brush is moved upward and forward in a position in front of the stretcher bar, that is, as described by Mr. Mischke, the stretcher bar is moved instead of the brush, this being the reversal of the operation which as I have before pointed out is a recognized equivalent.

Defendants' counsel objects to the part of the answer commencing on page 19 with the words "In examining the defendants' machines, I cannot but feel," etc., and to and including the end of the answer on page 22 as not proper testimony in rebuttal, on the same ground as stated in the objection to the prior testimony of the witness referring to the Sutton patent.

Adjourned until Thursday, March 13th, 1902, at 10.00.

NEW YORK CITY, N. Y., *March* 13, 1902.

Met pursuant to adjournment.
Present: Counsel as before.

Cross-examination by Mr. SCHREITER:

Defendants' counsel requests the production of "Exhibit Defendants' Machine," which as heretofore has not been produced though the witness testified with respect thereto.

X Q. 11. You are the same Charles E. Foster who testified on behalf of the same complainants in the case of Cimiotti Unhairing Co. & John W. Sutton *v.* William A. Hulbert, *et al.*?

A. I am.

X Q. 12. In that case I declined to cross-examine you and objected to your deposition on the ground that your testimony is incompetent, it appearing from your deposition that you do not understand the specification and drawings of the British patent to Lake, or of the other letters patent as to which you testify, and it further appearing from your testimony that you are not familiar with the art of removing coarse water hairs from fur skins to which said

letters patent relates. After this objection to your competency as expert witness, you were examined by complainants' counsel as to your qualification. Do you remember this examination?

92 Complainants' counsel objects to the question as grossly impertinent, needlessly offensive and insulting in that the individual examining a reputable expert arrogantly asserts that the witness does not understand the Lake patent. It is offensive to the highest degree. It is not a proper question, it is immaterial and irrelevant to any issue in this case whether the witness remembers prior and gratuitous insults offered to him upon another occasion. It is impertinent in that Henry Schreiter arrogantly assumes that he alone above all other men is able to put the correct interpretation upon the Lake patent. The honored expert Mr. Foster was known and respected as a lawyer, as a patent solicitor and as an expert before Henry Schreiter set his foot upon this soil. The witness is instructed not to answer.

A. Under the instructions of counsel I will not reply to the question.

X Q. 12½. I have before me a printed copy of the record in the case of this complainant against William A. Hulbert, *et al.*, and I read therefrom Q. 19 and your answer thereto, and ask you to state whether you recollect such evidence having been given by you? "It is a fact, is it not, that I retained you in November or December of last year, that I conferred with you as to the evidence given and to be given in the suit against the Comstock Unhairing Co., and that I examined for more than six days a witness in the Comstock Unhairing Co. suit in your office, and that I paid you for study of the Lake and Sutton patents, before I entered this firm, that is, before on or about January 1st, 1901, several hundreds of dollars." A. "Those are facts."

A. I do recollect such evidence having been given by me in that suit.

X Q. 13. The questions were propounded to you by Mr. Louis C. Raegener, the counsel for complainants here present, were they not?

A. They were.

X Q. 14. The next question, Q. 20, and your answer thereto, I find in the record of the Hulbert case as follows:

Q. 20. "It is likewise a fact, is it not, that in the latter part of 1900 you and I together examined unhairing machines in operation at complainants' shop in the city of New York?" A. "That is a fact."

X Q. 15. Do you recollect having so testified?

A. I think I do.

X Q. 16. The next question and your answer thereto were as follows:

93 Q. 21. "It is also a fact, is it not, that before you went on the witness stand yesterday morning you spent some time on Monday afternoon at complainants' shop and observed the operation

of Sutton machines built in accordance with the Sutton patent in suit?" A. "Yes, with different forms of Sutton machines built under the different Sutton patents."

Do you recollect having so testified?

A. I do.

X Q. 17. The next question Q. 22 I find in the record as follows:

Q. 22. "Now state in detail what experience you have had in connection with the removal of hairs from fur skins?" A. "About the time that the Castle patent was taken out Mr. Castle and Mr. Henry A. House of Bridgeport, made quite a number of inventions in connection with machines for use in dehairing fabrics. Some of these were for cutting away the inner portion of the hide to loosen the roots of the master hairs in order that they might be pulled out. Others were for shearing for the purpose of shearing down close to the fur. Others were for picking out and drawing out the fur to cover the portions of the hair that had not been removed. I was called upon in the preparation of the applications for letters patent and I to prepare myself for the prosecution thereof to examine these different machines in actual operation, which I did at different times, and in the course of this examination and of the prosecution of the case I became to that extent familiar with actual operations and with the state of the art as it was known at that date."

Do you recollect having so testified?

A. I do.

X Q. 18. The next question and answer, Q. 23, I find in the record as follows:

"Q. 23. That was more than twenty years ago. A. It was."

Do you recollect having so testified.

A. I do.

X Q. 19. Please state whether the patent referred to in your recited answer to Q. 22 above in the Hulbert case related to such unhairing machines as are involved in the controversy here?

A. I had several of the patents in mind at the time I gave that answer, or rather a number of inventions with which Messrs. Castle and House were connected, all having for their object to totally remove or cut down the length of the master hairs. Some of these inventions related to the character of the cutter used for this purpose, and some of them to particular means of driving the
94 cutters, including flexible shafts. All of these I saw in construction and operation in use upon skins in the actual removal of the master hairs. To the extent to which hairs are cut down as close as possible, these machines and the patents therefor related to such unhairing machines as are involved in this controversy, but none of them were like the unhairing machines in this controversy.

X Q. 20. Is it your understanding that the various machines on which those cutters and the driving mechanisms for the cutters were used were of the same kind of a machine as are involved in this controversy?

A. I find that question a little difficult to answer, but I assume that you mean whether they were machines for cutting off the master hairs above the surface of the skin. The machines your last question referred to were not of this character, but there were other machines I saw in use at that time which were of this character, that is, they cut off the master hairs close above the compacted mass of fur and then drew the fur out so as to conceal the roots of the master hairs.

X Q. 21. Do you consider machines wherein the master hairs are sheared off close above the compacted mass of fur and the fur then drawn out so as to conceal the roots of the master hairs of the same kind as the machines involved in this controversy?

A. There are quite a number of machines which I understand are involved in this controversy so that the question is a little difficult to answer. I understand that your question refers to any of the machines which I have had to consider in my testimony. These different machines cut off the master hairs to a certain extent, and employ different means for permitting this cutting to be effected as low down as possible, so that in a general way they are all alike. In all of the machines after the master hairs have been cut off the fur is drawn up so as to conceal the roots. You will, of course, understand that in giving my answers wherein I refer to the House and Castle machines I did so not for the purpose of showing that your House and Castle machines were like those I had referred to in my deposition, but merely to answer the question as to how far I was familiar practically with the general subject of dehairing skins.

X Q. 22. Did these House and Castle machines referred to in your preceding answer have any means for separating the water hairs from the fur before the water hairs were presented to the cutters or other removing devices?

A. Those machines did not, but, of course, other machines about which I testified I had had some experience had such means.

95 I am referring to the experience which I have had during the past two years in examining the operations of different machines operating in different ways.

X Q. 23. Which were those machines that you have examined in the past two years, and which had some means for separating the water hairs from the fur before the water hairs are presented to the cutters or other removing devices?

A. In giving my testimony in the Hulbert case I had in mind and testified having examined various machines used by Cimiotties in which the fur was separated from the hair before the latter was cut. In some of the machines this was done by the action of the brush and other devices, in other machines by action of a blast of air and other devices. Since that time I have, of course, seen the defendants' machine in this case, I have repeatedly examined the different Cimiotti machines and also examined the construction and operation of a machine in the establishment of the Nearseal Unhairing Co. which also separated the fur from the hair before cutting.

X Q. 24. When you say that among the machines used by Cimiotties, which you examined and where the fur was separated from the hairs by the action of a brush and other devices, do you refer to the different forms of the Sutton machines built under the different Sutton patents?

A. I am not familiar with the testimony that has been given in this case except that of Mr. Mischke, and do not know whether the construction of the machines used by Messrs. Cimiotti has been testified to. The machines which I saw in use at their establishment in which a brush was used carried out the general operation of the Sutton patent in this case, how far they may have embodied features of other Sutton patents I do not know, for I did not examine them in that connection, and only have a general knowledge of other Sutton patents such as I have acquired by seeing the drawings at different times.

X Q. 25. You have testified that you have spent some time at complainants' shop and observed the operation of different forms of the Sutton machines, built under the different Sutton patents, and that was the reason I asked you in the preceding question whether the machines which you saw in use at complainants' establishment, in which a brush was used for separating the water hairs from the fur, you meant to refer to the different forms of the Sutton machines built under the different Sutton patents?

A. I had in mind the two forms of machines, one of which separated the fur by means of the brush, as in the Sutton patent
96 in suit, and the other of which separated the fur by means of an air blast. I should not have referred to it as a Sutton patent, but the Cimiotti patent, and simply connected the two inadvertently because they both were used by Messrs. Cimiotti.

Adjourned to 10:30 March 14th, 1902, at complainants' premises.

NEW YORK, *March* 14, 1902.

Met pursuant to adjournment at the office of Cimiotti Unhairing Company, 55–57 West Third St., New York city, at 10:30 a. m.

Present: Counsel as before.

Cross-examination of the witness CHARLES E. FOSTER:

X Q. 26. Do you understand that machines for trimming the length of the water hairs—I mean machines shortening the length of the water hairs—by cutting them close to the surface of the packed fur like the machine of the Castle patent referred to in your testimony belong to the same class of machines or are such unhairing machines as the machines that you have seen in operation at the Cimiotti factory?

A. I do not know of any standard or rule by which to define different classes of unhairing machines. In a general way all machines which cut away the length of the master hairs, so that the

roots will be covered by the fur and concealed, may be said to belong to one class as distinguished from other classes, those, for instance, where the master hairs are pulled out by the roots. I, however, recognize that there is an essential difference between machines which draw to one side the fur so as to expose the master hairs and those which cut off the master hairs down as far the top of the mass of fur.

X Q. 27. The machine of the Castle patent then, if I understand your explanation correctly, is such a machine wherein the ends of the master hairs projecting above the layer of the fur are cut off and a part of the master hairs below the surface of the fur are left in the fur skin. Is my understanding correct?

A. Yes. Of course the operations upon the fur of these two classes of machines are radically different, although the operations upon the hair—the simple cutting operations—are similar.

X Q. 28. The machine of the Lake patent belongs to the class in which the fur is drawn away from the water hairs to enable
97 the cutters to remove the water hairs below the surface of the layer of fur, does it not?

A. If I considered that the machine of the Lake patent was a machine which would operate to perform the functions you have specified in your question, I would say that it belonged to that class of machines.

X Q. 29. Kindly answer my question without consideration of your opinion that you may hold as to the operativeness or inoperativeness of the machine of the Lake patent. Consider only the machine as described in the patent and assume that it performs the actions described therein. Having this in mind, state whether the machine of the Lake patent is of the class where the fur is drawn away from the water hairs, so as to enable the cutters to remove the water hairs below the surface of the layer of the fur or as it is set closely to the skin.

A. You must bear in mind that I have already stated that it is impossible to understand from the Lake description what operations are intended to be performed, and therefore I cannot answer your question, except with the reservations necessary in consequence of the opinion which I have expressed. I will endeavor to reply, however, by stating that assuming that in the Lake machine the fur is drawn by the action of the brushes away from the hair, then in that case the machine will belong to the class you specify.

X Q. 30. The drawing away of the fur from the water hairs in the machines of this class, for the purpose of enabling the cutters or other devices to remove the water hairs entirely, as by pulling them out with the root or by cutting them closely to the skin, effects the same thing as the air blast in the Cimiotti machine or the blowing with the mouth of the operator in the hand process, does it not?

A. So far as the carrying of the fur away from the roots is concerned the general features are the same.

X Q. 31. I do not quite understand the meaning of your answer.

A. There is a distinction in operation, of course, between cutting the master hairs and pulling them out, and to this extent the operations referred to by you are different; but so far as the fact that the fur is removed from the roots either by blowing or drawing away or brushing away is concerned, there is a resemblance.

X Q. 32. When you say "from the roots" do you mean from the roots of the water hairs?

A. Yes; from those portions of the water hairs near the skin.

X Q. 33. In your answer to Q. 10 you said that at the date
98 of the Lake patent the term "removal" was one rather loosely applied and that it referred to either the plucking of the hairs by the roots from the skin or the cutting of the hair above the skin, and very frequently and generally to the cutting of the hair at a point just below the upper surface of the compacted fur, as set forth in the Castle patent No. 213,735 and the Kokesch patent No. 195,826. Will you kindly point out in any prior patent, or any patents relating to machines of the class at about the date of the Lake patent or prior thereto, wherein the term is so loosely employed, as you said it was very frequently and generally done.

A. I myself employed that term and heard others employ that term at about the date of the Lake patent. I used that term in the specification which I prepared of the Castle patent No. 213,736, the drawings of which bears my signature. This was in 1879, and I saw these operations before that date. In that specification, which I myself wrote, the following terms occur: "the removal of this hair," column 1, clause 3; "master hair without wholly removing the latter," paragraph 5. That term is frequently used in conversing about the operations not only of the structure of the Castle patent, but of other machines which I saw in use where they shaved away the back of the skin and cut out the roots of the master hairs, which ran deep down into the skin so that they could easily be pulled out. This was only termed "removal," although in this case they were wholly removed and in the other case they were only partially removed by cutting away.

X Q. 34. Can you point out any other patent or other documentary evidence as to the use of the word "removal" in that sense at the date of the Lake patent as you used it in the specification of the Castle patent?

A. I could not do so without reference to the letters patent themselves and I have no copies here except that of the Castle patent.

X Q. 35. Which letters patent do you think contain such use of the term "removal" as you used it in the specification of the Castle patent?

A. I cannot specifically state, for I have no definite recollection. It would be proper in any letters patent which describe the detaching of any part of the master hairs and would be probably found in their descriptions.

X Q. 36. You said in your answer to Q. 10 that the term "removal" was used very frequently and generally in that sense, and

so I presume that you know of at least some other letters patent or books on the subject where the term was so used, besides the
99 specification of the Castle patent in which you have used the term so loosely. Kindly state if you know of any such other letters patent at the date of the Lake patent prior thereto.

A. I believe the Kokesch patent used that term, although I cannot recall from memory; but my special reference to the general use was not in connection with any particular form of machine but to what I knew of the use among those whom I had seen dehairing skins, and I termed it "loosely employed" because I had heard it used both in connection with the pulling out of the hair and the cutting off of the hair, which, of course, is not an exact use of the term, as one absolutely removes the hair and the other only a part of it. Further, I am supported in what I state by the statement in the Lake patent to the effect that the invention had "for its object the removal of the stiff hairs" and then referred to the common method of performing this operation, showing that that term was applied before the date of that patent and recognized in the art.

X Q. 37. I call your attention to the statement in the specification of the Lake patent on page 1, line 13, *et seq.*, where it says, referring to the standing water hairs, "and while thus separated they are clipped off with a pair of scissors *close to the skin*," and ask you to say whether in that sense as thus explained, viz., the cutting of the water hairs close to the skin, is or is not properly described by the term "removal"?

A. I think you misapprehend that clause of the Lake description, which says "the fur is blown away from around the standing hairs, and while thus separated they are clipped off with a pair of scissors close to the skin." That means while the hair and the fur are separated from each other. The term, however, would be proper if it was applied, as your question implies, that is, to separate the master hairs from the skin by cutting them off, and I understand that in a general way this is the meaning of the word "removal," line 8 of page 1 of the Lake patent.

X Q. 38. When the water hairs are cut off closely to the skin they are removed, are they not?

A. Yes, they are.

X Q. 39. Now, referring to the specification of the Castle patent, I call your attention to paragraph 5 in the first column thereof. I ask you to say whether this statement, "in order to expose this fine fur and at the same time to *conceal* to a great extent the master hairs without wholly removing the latter (which in many instances would leave but little body to the hairy surface, exposing the hide), is or is not a modification of the term "removal" as used in paragraph 3 of the specification, and whether it does not clearly
100 show that in the machine of the Castle patent it was not intended to wholly remove the water hairs?

A. I do not consider that this is a modification of the preceding description, which undoubtedly referred to such removal as was re-

quired to prevent the exposure of the master hairs at the surface. I know my own intention in using that language and there was no purpose to employ that term in two different senses. It is evident from reading the whole description that the patentee considered that the term "removal" applied to such a separation of a portion of the master hairs from the skin as would prevent their exposure at the surface. As I have before stated, this is an evidence of a loose use of the term.

X Q. 40. So far as I have been able to comprehend from your deposition the only person who used the term "removal" in such loose sense, if in fact it was so used in the Castle patent, is yourself, and this I do not consider sufficient warrant for your assertion in your answer to Q. 10 that the term "removal" was used so loosely as you say you did use it in the specification of the Castle patent, "very frequently and generally," and therefore ask you again to refer me to any patent or any document whatever bearing on the art at the date of the Lake patent wherein the word "removal," as relating to the water hairs, is so loosely employed, as you stated that it has been done, very frequently and generally.

A. I have already answered the first part of the statements in your question, which, therefore, I need not further reply to. As regards the question itself, I have before pointed out that here at Mr. Cimiotti's establishment I have no documents accessible that will enable me to reply.

X Q. 41. I presume that you have read and are familiar with the patents bearing on this art and therefore ask you to state if you recollect any such patent, book or document wherein the term "removal" is used in such loose way, as you said that it was used, very frequently and generally at the date of the Lake patent.

A. Yes, the Lake patent is one; the Castle patent is another; I think the term was used in the Kokesch patent. You will, however, further recall that I made that statement not altogether upon what was contained in patents, but from my own knowledge and recollection of the use of the term by those with whom I had associated in the use of the Castle and House and other machines. This was a common term generally employed to designate the detaching of a part of the master hairs, either by cutting or pulling out. Messrs.

House and Castle has an establishment at Bridgeport, where
101 quite a number of machines were in use, and I saw them frequently used, and conversed with the parties who were using them, not only in connection with the actual removal of the hairs, but with improved mechanisms for use in such operations, and the term "removal" was one frequently employed and properly employed and the term naturally employed in this connection. Your specific question, of course, refers to the date of the Lake patent. I had in mind also the use of the same term in subsequent patents and its common use in Mr. Cimiotti's shop and in general conversation about these processes at a later date.

X Q. 42. Can you state positively whether in the specification of

the Kokesch patent the term "removal" is used so loosely, as you say it was frequently and generally used?

A. Your question shows a misapprehension of my statement. I had a copy of the Kokesch patent and believe that that term was used before I made the statement in my deposition, although I cannot now recall the manner of its use. I would not refer to any one patent as being a loose use of the term; but when in several patents describing different ways of getting rid of the hair I find that sometimes it is used when the hair is wholly taken away and sometimes used when the hair is partly taken away, I recognize that there is a general loose use of the term, and I would say that it was not an exact use where the hair was simply trimmed off at the top or above the skin. I made my remark as to the term being a loose one in view of the fact that in the Lake patent it was proposed to cut away the upper portion of the hair above the surface of the skin and to point out this as one illustration of the loose manner in which the term was employed, in contradistinction to the same term when used for designating the pulling out of the hairs.

X Q. 43. Do I understand you correctly to say that your reason for saying that the term "removal," as relating to water hairs, was used loosely in the art at the date of the Lake patent because it was applied to designate the removing of only the part of the water hairs above the skin, leaving the roots in the skin, by shearing; whereas the term should be used only in connection with such removal of the water hairs as it is effected in plucking machines, where not only the body of the water hairs but also the roots are removed from the skin?

A. My reason for referring to the last use was substantially that stated in your question, although the use of the term "removal" to designate the detaching of that part of the hair which would otherwise be exposed is sufficiently exact for ordinary purposes in
102 the description of the patent. Technically or strictly it is not the removal of the hairs, but only a removal of a portion of the hairs.

X Q. 44. Please look at the copy of the patent I now hand you and state whether or not that is the machine of House and Castle to which you refer in your preceding answers.

A. This is one only of the machines to which I referred. House and Castle had several machines for this purpose, some of which constituted the subjects of letters patent to one or both of them.

X Q. 45. The machine illustrated in the patent is a machine for pulling out the water hairs with the roots, is it not?

A. It is. I may state that I prepared and prosecuted that application for letters patent.

Defendants' counsel introduces in evidence the printed copy of the specification and drawings of the U. S. letters patent to H. A. House and S. D. Castle for treating pelts, No. 233,415, Oct. 19, 1880, and the same is marked "Defendants' Exhibit House & Castle Patent."

Complainants' counsel objects and protests against the introduction of this patent in evidence as defendants' exhibit, and gives notice that he will move to strike out the same for the reason that the defendants' counsel has closed his proofs and that it is improper upon the complainants' rebuttal proofs for defendants' counsel to take additional evidence or to introduce exhibits in evidence; and while this particular exhibit may be immaterial and irrelevant to any issue and therefore it may be unimportant whether or not it is introduced in evidence, yet as a matter of principle complainants' counsel desires to record his protest at this stage of the proceeding to the introduction of any evidence or exhibits by defendant.

X Q. 46. Were those other machines of Messrs. House & Castle also for pulling out the water hairs with the roots?

A. No, not all of them. Some of them were for removing the outer portions of the water hairs above the mass of fur.

X Q. 47. Were those machines the machines described in the Castle patent No. 213,735, to which you referred in your direct examination?

A. I have not the copy of that patent before me, but that is probably the case; that is, that patent shows one or another of the machines in which House and Castle were interested and used.

103 There were others besides those set forth in these two patents. Whether patented or not I cannot recall.

X Q. 48. Among the features which you enumerated in your answer to Q. 10 as reasons why you find that the defendants' machines are not the machines of the Lake patent, you stated, first, that "in defendants' machines the skins are fed toward the brushing rolls; in the construction of the Lake patent the operation is reversed." We have now before us "Complainants' Exhibit Defendants' Machine," and I ask you to point out by what means or mechanism or by what change of the means or mechanism shown and described in the Lake patent this difference is accomplished. In your answer please refer to the Exhibit "Defendants' Machine" and to the Lake patent, if you find it necessary, to point out the difference.

A. In the Lake patent there are two rolls M $M^1$ and on one of them is a worm-wheel $M^2$ which engages a worm on a shaft $M^3$. It is stated that the worm shaft $M^3$ receives motion "from a spring pawl at $N^4$ which is fastened upon the frame A at $N^5$ by screws in a slot, as shown, so that it may be adjustable endwise, and at its other end engages with a ratchet wheel O on the end of the worm shaft, so that as the upright C moves over to the position shown in Fig. 2 the ratchet wheel will engage with the pawl $N^4$, and when the motion of the upright C is reversed the feeding operation will take place." Under the construction as shown the upright C swings to the left the ratchet O engages the pawl $N^4$ and the worm shaft $M^3$ is turned in the direction the reverse of the hands of a watch, which results in turning the worm wheel $M^2$ in the direction of the hands

of a watch and turning the feed roll in the same direction, which would feed the fur upward. In defendants' machine the parts have approximately the arrangement I have described, but the worm intended to correspond to the worm on the shaft $M^3$ is pitched in the reverse direction from that shown in the drawing of the Lake patent, so that when the frame swings back the feed rolls are turned in a reverse direction from what they would be in the Lake patent and feed the skin in a reverse direction from what it would be fed in the Lake patent.

X Q. 49. If I understand your explanation correctly, you say that in defendants' machine there is a worm provided with a left-hand thread in place of the worm having a right-hand thread, as shown at $M^3$ in the drawing of the Lake patent. Is it correct?

A. Yes; that describes the change of the construction shown in the Lake patent.

104 X Q. 50. In other respects the intermittent feeding mechanism in defendants' machine is the same as in the drawings and specifications of the Lake patent, is it not?

A. No. I said I pointed out the most material differences. There are a great many minute changes from the Lake structure embodied in the defendants' machine with the obvious purpose of better adapting it to perform its work. As regards the feeding devices the Lake machine has a spring pawl $N^4$, which is a continuous spring bar, while in defendants' machine there is a rigid slotted plate provided with a pivot, and on this pivot there is arranged a vibrating pawl with a coil spring to pull it in one direction and a set screw to limit its movement in the other direction. These features of construction are not in the Lake patent. Again, in the Lake patent the plate N pivoted to the upright C has at its lower edges notches with which engages a spring pawl $N^3$, and there are no such notches and no such spring pawl in defendants' machine. In the Lake machine the two feed rolls M $M^1$ are indicated as being of the same diameter, while in the defendants' machine the lower feed roll is, I should say, judging by the eye, at least four times the diameter of the upper feed roll.

X Q. 51. Do these minor differences, as you designated them in the construction of the parts of the feed mechanism, change in any way the operation of the feed?

A. The change in the diameter of the lower feed roll causes a more extended feed with the same motion of the parts.

X Q. 52. But it does not produce the feed motion at any other time than the mechanism of the Lake patent, does it?

A. This does not, but the change in the arrangement of the pawl $N^4$ does change the time of the feed, because in the Lake machine the pawl $N^4$, when the upright C is in its position at the left, Fig. 1, has its end very nearly below the brush $D^1$ so that it will begin to act as soon as the frame C begins to return to the left after receiving its forward position, and then the feeding action stops; while in defendants' machine the arrangement of the pawl is such that the

feeding action continues practically during the entire time the frame C continues its backward movement.

X Q. 53. The specification of the Lake patent says, on page 2, line 40, that "the spring pawl at $N^4$, which is fastened upon the frame A at $N^5$ by screws in a slot as shown, so that it may be adjustable endwise," does it not?

A. It does.

X Q. 54. What, to your understanding, is the object of making this pawl adjustable endwise?

105 A. In order that it may be set so as to properly engage the ratchet wheel and give the required movement, and I assume that it is set in the proper position in the drawings.

X Q. 55. If the pawl $N^4$, as shown in the drawing, be shifted to the other end of the slot, then the time for the beginning of the feed operation would be also changed, would it not?

A. It would be changed so that the feed would not begin so soon on the back vibration, but it would occur only during a part of the vibration.

X Q. 56. The reciprocating motion of the upright C in defendants' machine is shortened, is it not?

A. It is.

X Q. 57. Supposing that the reciprocating motion in defendants' machine would extend to the position of the brush D in the Lake patent drawing, which is not present in defendants' machine, then the feeding motion would not continue throughout the entire back swing of the upright C with the arrangement of the pawl on defendants' machine, would it?

A. It would not in that case; but there would have to be other changes made, because such an extended movement could not be had without altering the construction of some of the parts.

X Q. 58. Kindly say whether you find in the specification of the Lake English patent a description as to the direction in which the endless apron H with the pelt fastened thereto is to travel.

A. The specification states (p. 3, line- 18 and 19) that the skin is advanced over the bar B "towards the action of the brushing rolls," which indicates, but somewhat obscurely, the purpose to have it moved in a reverse direction of the hands of a clock.

X Q. 59. Is this the only reference that you find in the specification of the patent explaining the direction in which the apron H and the skin fastened thereto are to be passed or fed over the stretcher-bar B?

A. This last question relates to a different subject matter from the preceding question, because it refers to passing the apron, in the first place, in its adjustment on the machine, the statement being that it is passed first between the rolls A $A^1$, then underneath the compression plate and then drawn between the two feed rolls.

X Q. 60. I will quote a few sentences from the specification of the Lake patent and ask you to consider them and state whether

or not the statements are sufficient to inform any intelligent mechanic familiar with the art as to the direction in which the feed of the skin and of the endless apron supporting it should be arranged.

Recess.

106 After recess.

On page 2, line 22, of the specification of the Lake patent, it is said: "Over the bar B an endless apron H is caused to travel to carry the fur skin, shown at $H^1$. This apron is drawn first between two compression-rolls K and $K^1$ on the front edges of the vibrating support C, and underneath a compression-plate at $K^2$, which is held at an angle against the upper front edge of the supporting bar B, as shown, and is supported by two fingers that reach out from the shaft $K^3$, which has a handle $K^4$ on its upper end by which the compression-plate may be raised from the bar B whenever a skin is to be introduced. * * * The apron and skin, after passing over the bar B, are then drawn between two rolls M and $M,^1$ the one at M being provided with a toothed wheel at $M^2$ which engages with a worm or screw on a shaft $M^3$."

Further on, on page 3, line 15, the specification says: "With a machine constructed as above described the skin is fastened in any suitable manner by sewing or pins on the apron between the pressure rolls and between the pressure plate and the supporting bar B, and then the machine is set in motion, and as the drawing action of the apron by the roll M proceeds the skin is advanced over the bar B and towards the action of the brushing rolls, * * * "

A. The parts which you quote really do not state anything positively as to the direction in which the skin is to be fed in operation, except the part which I previously quoted, which stated that it "is advanced over the bar B and toward the action of the brushing rolls," which I before referred to as showing the direction the patentees assumed the skin was to travel in, and of course this is sufficient indication of the purpose.

X Q. 61. Supposing now that the drawing of the Lake patent shows the worm on the shaft $M^3$ threaded to right-hand instead of to left-hand, as it should be. Is it your understanding that this defect in the drawing would prevent a mechanic familiar with the art from constructing such unhairing machine as described in the Lake patent on this account?

A. It would not prevent him from so doing; but your question implies a misunderstanding of my testimony wherein I referred to the inaccuracies in the drawing which were pointed out with the view of showing that this drawing could not have been made from a working machine, but was merely a drawing of some proposed structure which had been so little developed that the patentees represented in the drawing a structure which could not work in the manner stated in the specification.

107 X Q. 62. If I understand you correctly, you conclude from the fact that in making the drawing of the Lake machine the draughtsman showed a worm threaded to right-hand, where he should have shown a worm threaded to left-hand, that the drawing was not made from an operative structure of a machine, but was merely a representation of a theoretical solution of the problem involved in the construction of the machine. Is my understanding of your conclusion right?

A. That is one of the reasons for my conclusion. I of course have before pointed out other reasons in connection with the specification, which certainly could not have been drawn or worded as it is if the description had been prepared after the examination of an operating machine. I can refer, for instance, to one other matter in the specification in the connection we are now considering, wherein it is stated that the feeding operation takes place when the upright C moves outward (see line 45, page 2). The sentence I refer to reads as follows: "So that as the upright C moves over to the position shown in Fig. 2 the said ratchet wheel will engage with the pawl $N^4$, and when the motion of the upright C is reversed the feeding operation will take place." Now, it is utterly impossible in the construction shown in the drawing and before described in the specification that the feeding operation should take place when the upright C, after being carried to the position shown in Fig. 2, is carried in the opposite direction.

X Q. 63. I believe now, still more than I have believed at the close of your testimony in the case of these same complainants against William A. Hulbert, that you do not understand and are not able to comprehend the plain meaning of the specification of the Lake patent. This quotation which you made and the statement that you made in connection therewith show plainly that you do not know when the feeding operation in the machine of the Lake patent takes place. Kindly refer to Fig. 2 of the drawing of the Lake patent and read over again that part of the specification which you have quoted and say whether or not the pawl $N^4$ in the position of the parts of the machine shown in Fig. 2 is shown to be in engagement with the ratchet wheel O, and whether or not the feeding operation must take place when the motion of the upright C is reversed, to wit, when the upright C moves from the position shown in Fig. 2 into the position shown in Fig. 1.

A. I would first call attention to the fact that Figs. 2 and 1 do not agree with each other in that in Fig. 1 the end of the
108 pawl $N^4$ is much more to the left than it should be in accordance with the position it occupies in Fig. 1. Assuming, however, that this is merely a draughtsman's error, I still find that the portion of the specification to which I refer states that "as the upright C"—I would like to take back my statement, because it was made carelessly, assuming that Fig. 2 was the upper figure, and to that extent my reference to what is on page 2, line 45, was incorrect. My eyesight is not particularly good and I had assumed that Fig.

2 was the figure where the part C was in its extreme left position, that is shown in Fig. 1, and I must withdraw what I said about it in this connection. I understood fully, however, as I have before stated, that when the part C moved to the left and brought the ratchet O into contact with the end of the part $N^4$, that this turned the worm wheel. My mistake was in assuming that Fig. 2 showed the part C in the position which is in Fig. 1, having reversed the figures in my mind.

X Q. 64. In stating the features in which defendants' machine, to your understanding, differs from the machine set forth in the Lake patent you stated in answer to Q. 10 further: "In defendants' machines the single brushing roll employed is not covered with a cloth-card or bristles or teasles, but is a metallic brush having long, flexible teeth over one-half of an inch in length, which act with a wiping action and not with a drawing action, as in teaseling." Kindly explain in what respects this metallic brush acts differently from a bristle brush in a machine of this kind.

—. I did not state that a metallic brush acted differently from a bristle brush, but that a brush acts differently from a card. In textile machinery there are what are called brushing rolls and card rolls. In the brushing rolls the teeth are long and flexible and have a sort of wiping action, while in the card rolls the teeth are short and stiff and very frequently are hooked, the object being to first penetrate the mass of fibers and catch hold of them and draw them out and untangle them.

X Q. 65. In view of the fact that the specification of the Lake English patent on page 2, line 46, *et seq.*, says: "Two brushes or brushing rolls are represented in the drawing at D $D^1$, driven by the same belt in the same direction, and these are covered with card-clothing, bristles or teasels to draw the fur on the skin over the edge of the bar B and away from the compression plate, and when the fur is so drawn the stiff hairs will stand up by themselves, as indicated in the drawing, and in this condition are carried over the cutters E and $E^1$, where they are removed." Does it not ap-
109 pear that the inventors of the Lake machine contemplated to use either card-clothing or bristle or teasel brushes for the purpose of effecting the separation of the fur from the water hairs by drawing the fur away from the water hairs in the manner stated, and while they probably understood that for some skins card-clothing brushes may be better serviceable than bristle brushes, or teasel brushes better suitable than card-clothing brushes for other kinds of skins, it was left to the judgment of the mechanic familiar with the art to select the kind of brushes, whichever in his understanding will be found the best adapted for the particular kind of work to be performed?

A. It does appear from the specification that the patentees proposed to use upon their brushing rolls or drawing rolls either card-clothing, bristles or teasels and that this was to be for drawing the fur in the manner stated. For this reason I must assume that they con-

templated that whether they used card-clothing or teasels or bristles, that each of these was to operate in the same manner as the other in drawing out the fur. Now, the action of teasels—a natural plant having numerous fine teeth with hooks on the ends—is to catch hold of and draw away the fibers as the roll revolves carrying the fabric near the ends of the teeth. Metallic teeth were substituted for the natural teasels in the course of time and these fine metallic teeth were bent so as to catch hold of the fibers and operate in the same manner as the natural teasels, and when the patentees of the Lake patent proposed to use bristles I assume that these bristles are to be stiff enough to enter the mass of fur and draw out the hairs or filaments thereof in substantially the same manner as either of the other two roller coverings will operate, it being left, as your question states, to the discretion of the operator as to which of these he would employ. But I do not understand that in substituting one for the other there would be any difference in effect except as regards matter of degree and consequently different characters of fur acted upon. Taking the Lake drawing and comparing it with defendants' structure, as I see it in looking at the side thereof where I see the end of the brush therein employed, I find that the latter has long, thin, flexible teeth, while in the Lake drawing the brush has the short, comparatively stiff, pick teeth, like those upon a card-clothng, and which would operate as I have described; while the long, flexible teeth of the brush in defendants' machine would act simply with a wiping action, not picking and drawing out the fibers, even if I assume that in each case the skin is presented to the brush or roll in the same way. I have before pointed out that it is impossible to determine from the Lake specification the way in which the skin is presented to the roll $D^1$; but in the defendants' machine the long, flexible teeth of the roll therein shown, in connection with the upward movement of the stretcher-bar as set forth by Mr. Mischke in his testimony, would have a very different action from the character of the roll illustrated and described in the Lake patent.

X Q. 66. Are the metallic teeth of the brush used in defendants' machine in any other respect different from bristles than that they are of wire?

A. No, they are not materially different. If, however, either the bristles or the metallic teeth were cut down to the proportions shown in the Lake drawing, they would act very differently.

X Q. 67. So, if I understand you correctly, the main difference, or probably the only difference, that you find between the brushes used in defendants' machines and the brushes shown in the drawing of the Lake patent is that whereas in the drawing of the Lake patent the bristles are shown to be short and the diameters of the brushes large, the bristles of the brushes in defendants' machines are comparatively longer and the diameters of the brushes comparatively smaller. Is my understanding correct?

A. Your understanding is correct so far as it describes simply the difference between the rollers. But this difference is a difference

between things themselves and attended with a decided difference in operation. I have had a great deal of experience in connection with textile machines; and a textile machine in the manufacture of cloth, which employs rollers like the rollers in defendants' machine, is called a brushing machine, and one which employs rollers like those described and illustrated in the Lake patent is called a teaseling machine. These are two entirely different classes of machinery, which are sold at different prices and for different purposes, and a brushing roll is considered to be an entirely different roll from a teaseling roll, for a different purpose, used in a different period of operations upon the cloth and calling for different means for operating it in the machine.

X Q. 68. The brushing roll in defendants' machine does draw away from the water hairs the fur, does it not?

A. It does more than that. If the teeth of the brush in defendants' machine were short, say one-eighth of an inch or even a quarter of an inch in length, they would simply draw away and open up the fibers and effect a teaseling action and would be the equivalents of the ordinary teasels or cards; but owing to their length they not only draw or wipe out the fur, but also brush
111 it down upon the off side of the stretcher bar, which result would not happen if they were short and acted with a teaseling action.

X Q. 69. That is your understanding of the operation of the machine, is it?

A. That is my understanding of the operation of the machine and I understand that that is the understanding of the operation of the machine as given by Mr. Mischke, if I have read his testimony correctly.

X Q. 70. You do not appear to be more familiar with the testimony of Mr. Mischke than you are with the art of unhairing, and I would suggest that before referring to the testimony of Mr. Mischke you look it up and point out where any such testimony of Mr. Mischke is contained.

Complainant's counsel objects to this improper criticism contained in the question.

A. I would state in the first place, that I understand that Mr. Mischke is one very thoroughly versed in the art and assume that having built the defendants' machine he would understand it very much better than I would from a comparatively short examination of the construction and operation of the said machine. In his testimony, in answer to Q. 43, he states that the bristles in defendant's machine are nine-sixteenths of an inch in length, which, of course, would afford the flexibility to which I have referred; and in answer to Q. 82, where he was asked whether the fur is brushed slightly below the working edge of the stretcher-bar, he replies: "slightly, not quite an eighth of an inch. By that I mean the ends of the hair and fur." In Q. 87 he is asked whether the bristles of

defendants' machine brush down to the extent to which he has testified the fur and hair or only the fur, and he answers "the fur and hair." He further points out how the stretcher-bar during this operation rises adjacent to the brush, and I think that these parts of his testimony justify me in stating that he says that the bristles brush down the fur on the off-side of the stretcher-bar, which during this time rises (in answer to Q. 70) three-sixteenths of an inch. I may have misapprehended him, but this is my understanding of his testimony.

X Q. 71. Do you mean to say that the action of the brush in defendants' machine, resulting in brushing the fur to the off-side of the stretcher-bar, is produced by increasing the length of the metallic bristles from about one-fourth of an inch, as you stated the bristles or card-clothing of the brushing rolls of the machine of the Lake patent are, to nine-sixteenths of an inch, as the bristles of the metallic brush of the defendants' machine are?

112 A. It is produced in part by that increase in length. Thus the rise of the stretcher-bar three-sixteenths of an inch would not of itself, in my opinion, secure the proper amount of brushing action on the off-side; but this limited rise, in connection with the fact that the ends of the long flexible wires after striking the fur will bend and wipe down upon the off-side of the stretcher-bar, secures the proper down-brushing effect, so that the two co-act to secure the desired result.

X Q. 72. The mechanism whereby the stretcher-bar is raised and lowered during its reciprocating motion to and from the cutters is described and shown in the Lake English patent, is it not?

A. It is to the extent that I have before pointed out—that is, the mechanism is fully described, but the mode of operating it, as I have before pointed out, is not certain.

X Q. 73. In what respect?

A. I have gone very fully into that heretofore, pointing out that the result would be different if the cam shaft was turned in different directions, and that it cannot be understood at what point the patentees of the Lake patent proposed the rising and falling action to take place, or whether in one direction or the other of the swing of the part C.

X Q. 74. But it is clear to your mind, is it not, from the description of the Lake English patent and from the drawings thereof, that during one motion of the stretcher-bar the raising of it is effected by the mechanism described therein, whereas in the reverse motion of the stretcher-bar the lowering of the stretcher-bar is effected by the mechanism, is it not?

A. No, because the action of the cam is such that the stretcher-bar would be both raised and lowered whether swung in either direction, but to different extents and at different times. There is nothing clear in this connection from a reading of the Lake patent. On the contrary, it is very obscure.

X Q. 75. Will you kindly point out in the specification of the

Lake patent that part from which you derived this understanding of the mechanism for raising and lowering the stretcher-bar.

A. I have already so minutely gone into this that it hardly seems necessary to repeat it, but of course I will do so. The part to which I referred specially is that part beginning with line 1, page 3, and ending at line 14 of the same page.

X Q. 76. This part of the Lake specification which you pointed out describes the mechanism whereby the raising and the lowering of the stretcher-bar is produced. I have carefully read this part and to my understanding it clearly conveys the idea that the
113 action of the mechanism is such upon the shaft $C^1$ supporting the upright C, wherein the stretcher-bar is mounted, that it causes "the upright C to gradually descend as the bar moves under the brushing roll $D^1$," and it is further stated therein that the stretcher-bar B "describes a curve like a concave to the roll. My understanding is that this curve, like a concave to the roll, is described by the stretcher-bar as the stretcher-bar moves under the brushing roll $D^1$. Is my understanding correct?

A. Your question is practically a correct synopsis of the part of the specification to which I refer describing the descent of the stretcher-bar; but there is nothing said about the ascent or the time when it ascends,—whether it ascends on the same motion during which it descends or otherwise,—or whether this curve and descent is when the stretcher-bar first meets the roll at one side or when it is going directly below it, so that, as I have before pointed out, the specification is obscure.

X Q. 77. What part of the cam Y produces this descending motion of the stretcher-bar referred to in the paragraph of the specification that we have just discussed.

A. That depends upon which direction the cam is rotated, and there is nothing in the specification from which I can understand in which direction it is turned. Further, it would be different if the cam was rocked from what it would be if it turned continuously in one direction, and the specification implies that the cam is rocked—that is, the shaft is stated to be "partially revolved" (line 17, p. 2), and reference is made to the action resulting from "its partial rotation" (line 8, p. 3), although at other portions reference is made to "each revolution of the shaft." If it is intended that the shaft should be rocked the starting point of the rocking might be when the shaft is in the position shown in Fig. 2. All of these uncertain factors in the case make it difficult to determine as to the time of action of the descent of the stretcher-bar.

X Q. 78. Is the shaft $C^1$ referred to on page 2, line 17, of the specification of the Lake patent and on line 8, p. 3, the shaft on which the cam Y is mounted?

A. It is not the shaft upon which the cam Y is mounted; that, I see, refers to the shaft upon which the eccentric is mounted, which has a partial rotation or rocking action.

X Q. 79. On what shaft is the cam Y mounted?

A. It is mounted on the shaft G.

X Q. 80. Is there anything in the specification of the Lake patent to show or indicate that this shaft G was intended to rock?

114 A. No. I was mistaken on that point, applying the wrong letter to that shaft which I understand rotates. Leaving this, however, out of the question, it still remains that the direction of rotation is absolutely uncertain, and depending upon that direction of rotation there would be a difference of action in the descent of the stretcher-bar.

X Q. 81. *Do you mean to say that* the same part of the cam Y would produce the descending of the stretcher-bar if turned in one direction and would produce the raising of the stretcher-bar if revolved in the opposite direction?

Objected to on the ground of indefiniteness.

A. What I mean is, if the cam Y was turned in the direction of the hands of a clock from the position shown in Fig. 1, the lever $X^2$ would have its upper end swung inward to operate the eccentric as the upper end of the lever passed the point which is just above the letter G in Fig. 1. If the cam was turned in the other direction—that is, the direction reverse of the hands of a clock—the upper end of the lever $X^2$ would move to the left as the part where the lower letter Y is situated passed beneath the upper end of the lever $X^2$. Each of these movements would result in an action upon the stretcher-bar, but one at one time and another at another, to a different degree. Assuming the parts to start from the position shown in Fig. 2 and the cam to revolve in the direction of the hands of a clock, the travel of the lower end of the lever $X^2$ towards the center of the cam as the point at the top of the cam was brought toward the end of the lever would cause the descent of the stretcher-bar, while the reverse motion of the hands of the clock would cause the same action as the projection on the lower part of the cam was brought toward the end of the lever, but not to so great an extent. Answering your question specifically, therefore, it appears that on the rotation of the cam in one direction one part would produce the descent of the stretcher-bar, while on the rotation in the opposite direction another part would produce the descent.

X Q. 82. But I understand you to say that you believe that the shape of the cam Y is such that there are two descents of the stretcher-bar produced during each whole revolution of the cam.

A. I did not so state. During each semi-revolution of the cam there is one descent; but there are two points in the cam either of which might operate to produce the descent, according to the direction in which the cam is rotated, and these two points are different in their shape and relations to the other parts of the

115 cam, so that the action in rotating the cam in one direction to produce a descent on a revolution would be different from

A.D. 1881. June 28. No. 2836.
LAKE'S Complete Specification.

1 Sheet.

No. 192
Cinsotti
Unhairing
Co. et al.
v.
American
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Co. et al.
p. 115a

FIG. 1.

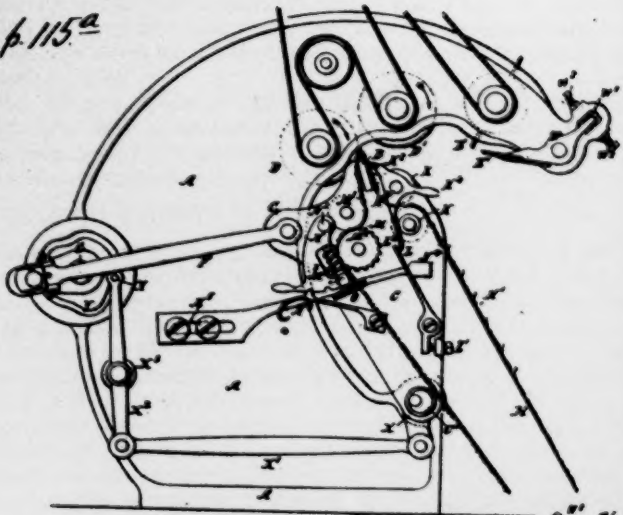
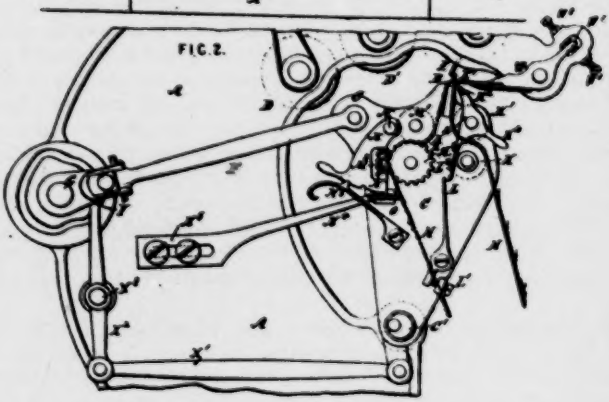


FIG. 2.



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Printers to the Queen's most Excellent Majesty 1881.

the action in rotating the cam in the other direction to produce a descent on a revolution, and the point at which the descent would take place would be different in one case from the point at which it took place in the other, and the extent to which it descended in one case would be different from what it was in the other.

Adjourned to Tuesday next at 10.30 a. m.

NEW YORK, *March* 18, 1902.

Met pursuant to adjournment.
Present: Counsel as before.

Cross-examination of the witness CHARLES E. FOSTER resumed:

X Q. 83. Please mark in the print of the drawings of the Lake English patent which I now hand you the points of the cam either of which, to your understanding, operates to produce the descent of the stretcher-bar. Please mark those points in blue on both figures of the drawing.

A. I have placed on the drawing two figures, 1 and 2, with arrows indicating two different directions of rotation of the cam. If the cam rotates in the direction of the arrow *a*, Fig. 1, the point 1 will force the upper end of the lever $X^2$ in the direction of its arrow and will cause the descent of the stretcher-bar. If the cam moves in the direction of the arrow *b*, Fig. 1, the point 2 will force the upper end of the lever $X^2$ in the direction of its arrow and will cause the descent of the stretcher bar. Referring to Fig. 2, if the cam moves in the direction of the arrow *a*, then the point 1 will force the upper end of the lever $X^2$ in the direction of its arrow and will cause the descent of the stretcher-bar. If the cam moves in the direction of the arrow *b*, the point 2 will force the upper end of the lever $X^2$ in the direction of its arrow and will cause the descent of the stretcher-bar.

Defendants' counsel introduces in evidence the drawing marked by the witness and the same is marked "Defendants' Exhibit Foster's Marked Drawing of Lake Patent."

(Here follows diagram marked p. 115*a*.)

Objected to by complainants' counsel on the ground that defendants have closed their proofs and have no right to offer exhibits in evidence.

X Q. 84. As shown in Fig. 2 of the drawing of the Lake English patent, the frame supporting the stretcher-bar is in its normal
116 position, by that I mean it is neither raised or lowered. Is that your understanding of the drawing?

A. It is difficult to give a categorical answer to that question, for the reason that in neither figure is there illustrated the form of that portion of the cam groove which is beneath the end of the connecting rod. It would not be proper to say that in the construction shown in Fig. 2 the frame supporting the stretcher-bar is not raised, because if the cam has moved in either direction carrying the point 1 on the point 2 away from the end of the lever $X^2$, the latter would in such case be thrust outward at the lower end, which would lift the frame. The time of lifting, however, and the extent of the lift would be according to the direction of rotation of the cam.

X Q. 85. My question relates solely to the position of the cam and the other parts of the mechanism for raising and lowering the stretcher-bar, as shown in Fig. 2. I have no reference to any motion of the cam. With this explanation please state whether to your understanding of the drawings of the Lake English patent the frame of the stretcher-bar is shown in Fig. 2 in its normal position, to wit, in a position where the stretcher-bar is neither above nor below its normal position.

A. I cannot answer that question, because I cannot recognize any normal position of the stretcher-bar. This bar takes different positions, and in its movement from the position shown in Fig. 2 would change its elevation in traveling along a generally curved course, moving downward at some point, which point would, however, depend upon the direction of rotation of the cam, and I therefore must consider this in answering your question.

X Q. 86. Your understanding of the operation of the mechanism for raising and lowering of the stretcher-bar shown and described in the Lake English patent is that the descent of the stretcher-bar is produced by the cam Y forcing the upper end of lever $X^2$ inwardly in the direction of the arrow that you marked in the drawing, is it not?

A. So far as I can determine from the drawing, the movement of the upper end of the lever $X^2$ in the direction of the arrow—that is, to the right—would result in turning the eccentric portion of the shaft $C^1$ in the direction of the hands of a watch and would cause the descent of the frame carrying the stretcher-bar?

X Q. 87. Then if the cam Y moves the upper portion of the lever $X^2$ in a direction opposite to the arrow which you marked in the drawing, to wit, toward the left, an opposite motion of the
117 eccentric portion $C^1$ of the shaft will occur and the stretcher-bar will be raised, will it not?

A. Yes.

X Q. 88. Thus we may say that the descending and ascending motions of the stretcher-bar are produced and determined by the outline or configuration of the cam Y, are they not?

A. Yes; they would result from this configuration of the cam operating through the eccentric portion $C^1$.

X Q. 89. You stated in your answer to Q. 2 that you are a practical draughtsman. Please take a sheet of paper and make a drawing of the cam Y as shown in Figs. 1 and 2 of the drawing of the Lake English patent, and in doing so please mark the center of the cam.

A. I can of course make a rough copy of the cam—an off-hand sketch—but you will understand that drawing cams is considered among draughtsmen as one of the most exact pieces of draughtsmen's work which can possibly be attempted. It should be done with tools and with the greatest exactitude to be of any value whatever as indicating the effects to be produced by the cam. With this statement I am willing to make a rough sketch as near a copy of the cam as shown in the Lake drawing as I can make by eye, if that will serve your purpose. I do not consider it to be worth anything in giving my testimony as to the action of the cam shown in the Lake drawing.

X Q. 90. Under these conditions I withdraw my request and shall endeavor to follow the purpose for which I desired to use the drawing on the drawings of the Lake English patent which you have marked. Kindly mark the center of the cam in Fig. 1 of the drawing of the Lake patent.

A. The center of the cam should be the center of the shaft G, and I have with a black pencil indicated that as nearly as possible by the eye with a dot. Not seeing the complete circle, it is a little difficult to judge.

X Q. 91. Kindly draw a line through the center of the cam that you marked so that it will intersect the point marked 1 by you and extend the line throughout the diameter of the cam.

A. The point I marked 1 is of course intended to be the center of the highest point of the projection at 1 and I draw a line from the same upward through the center of the cam.

X Q. 92. Now mark the center of the cam and draw a line intersecting the center and the point 1 marked by you in Fig. 2 of the drawing of the Lake patent.

A. I have done as you request.

X Q. 93. Extend the line to the opposite part of the periphery of the cam.

A. I have so done.

118 X Q. 94. Now draw another line through the center of the cam and intersecting point 2 marked by you in Fig. 2 of the drawing of the Lake patent.

A. I have so done.

X Q. 95. And now measure the distance from the center of the cam to the point 1 marked by you in Fig. 2 of the drawing.

A. I can only do so by laying the edge of a sheet of paper to coincide with the line that I have drawn and dot off the two points thereon, which I have done.

X Q. 96. Now please draw a line on this sheet of paper which I now hand you and mark thereon the distance which you have taken between the center of the cam and the point 1.

A. I have done so.

X Q. 97. Now take the distance between the center of the cam and the point 2 which you marked in Fig. 2 of the Lake drawing.

A. I have done so.

X Q. 98. Now kindly draw another line underneath the one and transfer one of the points marked on the upper line to this, and then mark off the distance that you now measure between the center of the cam and the point 2 on this line.

A. I have done so. The lower line represents the space laid off on the second measure.

X Q. 99. That part of the periphery of the cam which is exposed to the left of the center in Fig. 2 of the Lake drawing is the part which is on the opposite side and in contact with the pin in Fig. 1 of the drawing of the Lake English patent, is it not?

A. It is intended so to be as I understand. Of course I recognize slight differences in the constructions in the two drawings of the cams of Figs. 1 and 2.

X Q. 100. The distance which you marked on the two lines drawn on the sheet of paper which I have handed to you as indicating the distance from the center to each of the two points 1 and 2 marked by you in the drawing of the Lake English patent are different, are they not?

A. The distances are different.

X Q. 101. Please mark on these lines the points indicating the center of the cam with the letter *c*, and the points indicating the distances of the two points with the numbers of the points as you marked them in the drawing of the Lake English patent.

A. I have done so.

The drawing representing the marked lines is introduced in evidence and marked "Defendants' Exhibit Foster's Measurements of Cam Y of Lake Patent."

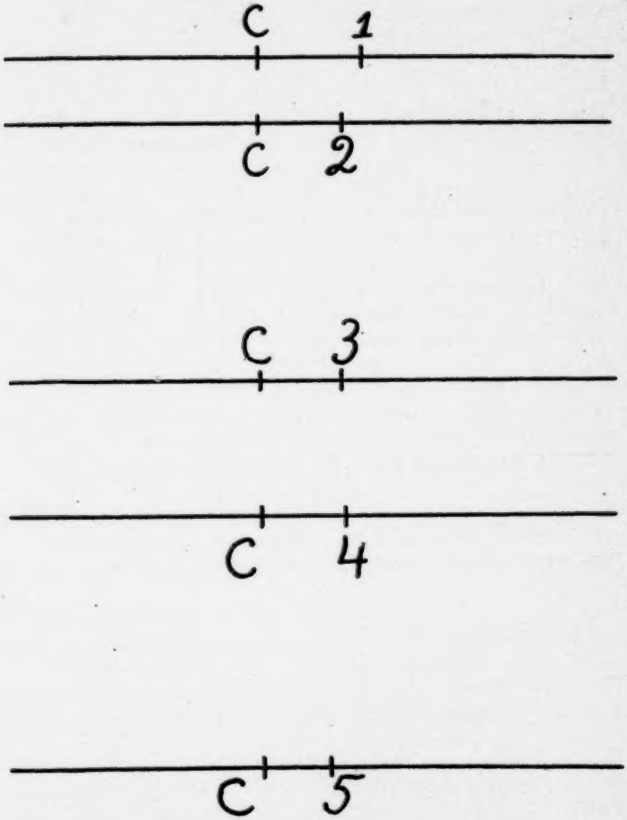
Same objection by complainants' counsel to the introduction of exhibits by defendants.

(Here follows diagram marked p. 118*a*.)

DEFT'S EXHIBIT

"FOSTER'S MEASUREMENTS"

OF CAM Y OF LAKE PATENT




No. 192
Amiotte Co.
Annexed
} p. 118a

119 X Q. 102. Kindly mark in Fig. 2 of "Defendants' Exhibit Foster's Marked Drawing of Lake Patent" the point of the periphery of the cam Y which in Fig. 1 is shown to be in contact with the pin of the lever $X^2$.

A. That is as nearly as I can make it about at the point from which I have drawn a line marked 3.

X Q. 103. Kindly draw another line on "Defendants' Exhibit Foster's Measurements" underneath the two already thereon and mark on this line a point indicating the center of the cam and the distance of the point you marked 3 on the periphery of the cam from the center.

A. I have done so.

X Q. 104. Please mark the point indicating the center C and the point indicating the distance from the center to point 3 with numeral 3.

A. I have done so.

X Q. 105. Now mark a point between the points 3 and 2 marked by you in Fig. 2 of "Defendants' Exhibit Foster's Marked Drawing" approximately midway.

A. I wish it to be understood that I do not regard the point 3 as necessarily exact, as it is covered up in Fig. 2 and I have to a certain extent to guess at it, but the point to which the line 4 leads is approximately midway between the points 2 and 3.

X Q. 106. Kindly draw another line on "Defendants' Exhibit Foster's Measurements" and mark thereon the center of the cam Y, indicating it by letter C, and indicate thereon by a point the distance of the point 4 from the center of the cam Y, marking the point with numeral 4.

A. I have done so.

X Q. 107. Please compare the distance of the point 2 from the center and of the point 4 from the center and state whether you find them different.

A. They are the same so far as I can judge.

X Q. 108. If the distance of the point 2 from the center of the cam is the same as the distance of the point 4 from the center of the cam, can there be any descent produced in the path of the stretcher-bar when the point 2 is in contact with the pin in the upper end of the lever $X^2$?

A. Your question is not exact. When the pin at the end of the lever $X^2$ is at any point in the groove of the cam there can be no descent, of course. There would be no movement vertically imparted to the stretcher-bar if the cam turned to carry the part from the point 2 to the point 4 in contact with the pin at the end of the lever $X^2$.

X Q. 109. The downward extension of the line which you have drawn in "Defendants' Exhibit Foster's Marked Drawing of
120 the Lake Patent," intersecting the point 1 and the center of the cam Y, marks approximately the center of the depression in the configuration of the cam, does it not?

A. It marks *approximately* the center of depression, but not exactly, leaving out of consideration the shape of that part of the groove which is concealed by the end of the connecting rod.

X Q. 110. Is there any part of the configuration of the cam representing the depression concealed by the end of the connecting rod?

A. No part is concealed at the point through which the extension of the line passing through point 1 and center of the shaft passes, but there is a part comprising nearly one-eighth of the total outline of the cam groove which is concealed in both figures 1 and 2.

X Q. 111. Kindly draw another line on "Defendants' Exhibit Foster's Measurements" and mark thereon the center of the cam Y, designating it *c*, and mark thereon another point at a distance of the intersecting point of the extension of the line marking point 1 from the center of the cam Y.

A. I have done so and mark the point with the numeral 5.

X Q. 112. Please compare the distance between the points C and 5 on "Defendants' Exhibit Foster's Measurements" with the distance between the points C and 2 and state what you find.

A. I find that the distance between the points C and 2 is greater than between the points C and 5.

X Q. 113. Now, compare the distance between the points C and 2 and between the points C and 1 marked on "Defendants' Exhibit Foster's Measurements" and state what you find.

A. I find that the distance between the points C and 1 is greater than the distance between the points C and 2.

X Q. 114. Is not the difference between the distances marked by points C and 2 and C and 1 approximately or nearly the same as the difference in the distance between the points C and 2 and C and 5?

A. There is a greater difference between the points C and 1 and C and 2 than between the points C and 5 and C and 2. It will, of course, be evident that these minute measurements depend almost on the thickness of the lines of the drawing and are almost microscopical, so small indeed that I find it difficult to make them with extreme exactness with the appliances which I have at hand and without a magnifying glass.

X Q. 115. If, as you have testified, the action of the cam Y is such that when the point marked 1 by you in "Defendants'
121 Exhibit Foster's Marked Drawing" comes in contact with the pin set in the upper end of lever $X^2$ causes this lever to move inwardly (to the right) and thereby produces a descending motion of the stretcher-bar, is it not equally true that when the depressed part shown on the intersection of the extended portion of the line 1 comes in contact with the said pin this depression causes the upper portion of lever $X^2$ to move in opposite direction outwardly, or to the left, and thereby produces a rising motion of the stretcher-bar?

A. Your question ignores the different directions in which the stretcher-bar is traveling and the different directions in which the

cam may turn. Assuming the frame C and the stretcher-bar to be in the extreme position at the right, shown in Fig. 2, and the cam to rotate in the direction of the arrow *a* in Fig. 2 as I drew it in blue pencil, then the projection 1 will carry the upper end of the lever $X^2$ to the right and cause the frame C and stretcher-bar to descend until the point 1 is passed, when there will be a reverse motion of the frame C to a certain extent until the half revolution of the cam is completed and the parts are in the position shown in Fig. 1. Assuming the movement of the frame C from the right to the left, with the cam turning in the direction of the arrow *a*, the depressed portion of the cam does not come into action, but on the continued motion in the direction of the arrow *a* carrying the frame C to the right (I am referring to Fig. 2 throughout), the depressed portion referred to will cause the upper end of the lever $X^2$ to move to the left with a slight rising motion of the frame C and stretcher-bar as the frame C thus swings in the opposite direction. If I assume that the cam rotates in the direction of the arrow *b*, Fig. 2, then the first movement of the upper end of the lever $X^2$ will be to the left, giving a rise to the frame C as it moves towards the left to the position shown in Fig. 1. On the return movement of the frame C to the right the point 1 of the cam Y will then move the upper end of the lever $X^2$ to the right and cause a descent of the frame C.

Recess.

It will be seen from the drawing Fig. 2 that the pin on the end of the lever $X^2$ is not midway between the high point 1 and the depression 2, and therefore, as I have before stated, the point of depression will be different if the cam is moved in one direction than if it is moved in the other, because in Fig. 2 there is, say
122 110° between the point 1 and the position of the pin at the end of the lever $X^2$, while there is only say, 70° between the said pin and the point of depression of the cam.

X Q. 116. The distance between the pin at the upper end of the lever $X^2$ and the point 1 of the circumference of the cam as marked in Fig. 2 of the Exhibit "Foster's Marked Drawing" is the same as the distance between the pin in the upper end of the lever $X^2$ and the point at which the line drawn through the center of the cam and the point marked 1 by you in Fig. 1 intersects the periphery of the cam at approximately the center of the depression, is it not?

A. I understand that your question is whether the distance between the pin and the point 1 in Fig. 2 is approximately the distance between the pin and the center of the depression at the top of the cam in Fig. 1 as marked by the intersecting line. I have heretofore recognized that this line intersecting the point 1 and the center of the shaft only approximately intersects the center of the depression, so that the distance is not the same but only approximately the same, because the center of the depression in Fig. 2 is nearer to the upper end of the lever than it would be if directly on the line drawn between the center and the point 1. In other words,

as a mechanic would express it, the cam is not a regular cam but is an irregular cam, the point of depression at one side of the center of the shaft not being opposite the point of rise at the other side.

X Q. 117. Does not the fact that the center of the depressed portion of the cam as indicated by point 6 in Fig. 1 of the drawing is approximately equi-distant from the pin set in the upper end of the lever $X^2$, as the protruding point 1 in Fig. 2 of the drawing is from the same pin, assuming the cam and the crank to rotate in the direction of the hands of a watch, show that the raising of the stretcher-bar in the swing from left to right, or, with other words, from its position shown in Fig. 1 to its position shown in Fig. 2, does occur in about the same place as the descent in the path of the stretcher-bar occurs when moving from right to left, or, with other words, from the position shown in Fig. 2 to the position shown in Fig. 1?

A. I cannot regard the word "about" as insignificant in your question, in view of the minute measurements which you have required me to make in this connection. It is a fact that the distance between the upper end of the pin and the center of the depression in Fig. 1 is greater than the distance between the pin and the apex of the point 1 in Fig. 2—in other words, the depression and
123 rise are not directly opposite—so that so far as this is concerned it is absolutely sure that the rise on one movement would not be opposite the point of the depression on the other. Further, the extent of the rise would differ from the extent of the depression.

X Q. 118. That much, however, is certain, is it not, that in the position of the parts shown in the drawing of the Lake English patent the descent of the stretcher-bar occurs in one swing, whereas the ascent occurs in the return swing of the frame supporting the stretcher-bar?

A. That is true.

X Q. 119. There are not two ascents or two descents in any swing of the stretcher-bar either to or away from the cutters?

A. Practically I understand that there is one ascent on one movement and one descent on the return movement. There are minute features in the cam which, if strictly followed, might give a sort of waved movement, but I have disregarded these. When I have spoken of one ascent or one descent I assumed that it is recognized that when the point 1, for instance, comes beneath the end of the lever $X^2$ the latter will be first thrown to the right and will then swing back, and when the end of the lever co-acts with the depression in the cam it first enters the same and then leaves it, causing an up-and-down movement of the stretcher-bar, which I term one movement.

X Q. 120. I understand perfectly well that in each swing of the frame supporting the stretcher-bar when the stretcher-bar is made to ascend the stretcher-bar again recedes after attaining the highest point of the ascent to what I would designate a normal path; and again, in the opposite swing of the frame supporting the stretcher-

bar, that when the stretcher-bar descends to the lowest point it again rises to the normal path. My question related only to the ascent, whereby the stretcher-bar is lifted above its normal path, and the descent, whereby the stretcher-bar is lowered below its normal path. This I also understand is the sense of your explanation in your preceding answer. Is that so?

A. It is so far as there is an ascent and descent at each swing; but taking the proportions of the cam shown, the position which the stretcher-bar takes after descending is not the position which it occupies before descending, because the heights of the cam lifts on opposite sides of the depression are not exactly the same.

X Q. 21. When you said in answer to X Q. 82 that there are two points in the cam either of which might operate to produce the descent according to the direction in which the cam is rotated, did you have in your mind the descent of the stretcher-bar from the highest point of its ascent, or did you mean to say that there
124 are two different points on the cam either of which is capable of producing the descent?

A. I have before pointed out that I recognized that one of the points in the cam lifts the stretcher-bar to a higher point than the other, which, of course, would be its highest point of ascent. There are between the points 1 and 2 on each side cam edges which produce no action upon the end of the lever $X^2$, and my statement means that if the cam is turning in one direction, with the pin at the end of the lever resting on one of these edges, one of the points, 1, will produce a descent of the stretcher-bar from the position it then occupies; while if the cam is rotated in the opposite direction, the lug of the lever $X^2$ resting on the other of said edges, the point 2 will move the lever $X^2$ to also cause the descent of the stretcher-bar from the position which it occupied while the end of the lever rested on this edge of the cam.

X Q. 122. But in each case it will be in one swing of the frame ascending from and returning to the normal path of the stretcher-bar, and in the other swing the descending from and ascending to the normal path of the stretcher-bar, will it not?

A. Yes, except I cannot recognize that what you term the normal path of the stretcher-bar at one swing is exactly the normal path of the stretcher-bar on the other swing.

X Q. 123. The crank actuating the frame C supporting the stretcher-bar and the cam Y are fixed to the shaft G, are they not?

A. I so understand.

X Q. 124. Thus we may say that the relation of the crank and the cam are constant. By this I understand that both move simultaneously and in the same direction as the shaft G rotates?

A. Yes.

X Q. 125. Assuming now that the shaft G and the cam Y and the crank rotate in the direction of the hands of a watch—that is, in the direction of the arrow *z* which I marked in Fig. 1 of Exhibit "Foster's Marked Drawing," the depressed portion of the cam will

come first in contact with the pin in the upper end of the lever $X^1$ and produce an ascent of the stretcher-bar on the swing of the frame C from the brush D to the cutters, will it not?

A. There will be an ascent of the stretcher-bar during the movement from its position near the brush D to the cutters.

X Q. 126. And continuing that motion of the shaft G and the cam and the crank in the same direction, the frame C will be returned from the cutters to the brush D and during this return swing the protuberance marked by you point 1 in the exhibit will produce a descent of the stretcher-bar, will it not?

125 A. Yes. There will be a descent of the stretcher-bar as the result of the action of the protuberance 1 during a part of the return swing. It will of course be understood that in connection with these last two questions it is assumed that the shaft is turning in the direction of the arrow z.

X Q. 127. The extent of this ascending and descending motions of the stretcher-bar is dependent upon the configuration of the depression and protuberance of the cam? By this I mean the larger the protuberance or the larger the depression, the more extensive will be the ascent and the descent produced in the path of the stretcher-bar?

A. It of course follows that the larger the protuberance and the larger the depression—that is, in mechanical parlance, the greater the throw of the cam, the greater the movement imparted to the stretcher-bar.

X Q. 128. And the relative position of the protuberance and of the depression of the cam to the cam determines the point at which the raising and the lowering of the stretcher-bar occurs in the swinging motion thereof, does it not?

A. Yes.

X Q. 129. The specification of the Lake English patent states, on line 8, page 3, *et seq.*, that the uprights C are caused to gradually descend as the bar moves under the brushing roll $D^1$. Supposing now that the shaft G and the cam Y and the crank of the machine are to be rotated in the direction of the hands of a watch, or, with other words, in the direction indicated by the arrow z in Fig. 1 on the Exhibit "Foster's Marked Drawing," and which is the same direction as the shaft and the cam are rotated in defendants' machines, would it involve any departure from the construction of the machine shown and described in the Lake English patent if the position of the cam on the shaft G be shifted one way or the other to some extent to produce the ascent of the stretcher-bar "as the bar moves under the brushing roll $D^1$" from the position shown in Fig. 1 of the Lake patent drawing to the cutters?

A. I would first desire to call the attention of the court to the fact that my testimony to-day has been based wholly upon the possible actions in the construction shown in the Lake *drawing*, without any reference to the description in the patent itself. Assuming now that the specification had pointed out (which it does not) that the

shaft and cam are to be moved in the direction of the hands of a watch, I would then understand from the portion of the description which you quote, in connection with the drawing, that it is intended
126 to set forth that the uprights C are to be carried from the position shown in Fig. 2 to the left in order to descend, because with the cam moving in the direction of the hands of a watch it is necessary for the parts C to be in the position shown in Fig. 2 in order to descend by the action of the point 1, as it is then brought against it. If the parts C were in the position shown in Fig. 1 and the cam moved in the direction of the arrow *z*, the parts C would not descend, as stated in the part of the specification quoted, but would ascend. To follow the description, page 3, line 8, *et seq.*, with the shaft moving in the direction of the arrow *z*, and cause a descent as the stretcher-bar passes beneath the roll $D^1$, it must start from the position shown at the right in Fig. 2, and then following the description, the stretcher-bar moves to the brushing roll $D^1$, describes a curve of some kind and meets with a brushing action by that roll. This being the case, I fail to see how it would be possible to state that a construction like defendants' machine follows or embodies that of the Lake patent, when there are such changes made that the stretcher-bar does not have the action described, or, as stated in your question, where it produces the ascent of the stretcher-bar as the part moves under the brushing roll $D^1$ from the position shown in Fig. 1 of the Lake patent drawing to the cutters. This would, if the bar was brought into coöperation with the roll $D^1$ on its movement to the left, also bring it into action with it on its movement to the right, which would be practically inoperative, and if it did not come in contact with it on its movement to the left, then it would not follow the description to which I have referred.

X Q. 130. Is it your understanding of the specification of the Lake English patent (I refer more particularly to the paragraph commencing on page 3 thereof) that the stretcher-bar is to be brought in brushing contact with the brush $D^1$ during the descent to wit, as you explained it, when swinging from the position shown in Fig. 2 of the drawing to the brush D?

A. Of course you will recognize that I have repeatedly stated that this part of the specification is exceedingly obscure; but the clause to which you refer states, first, that the uprights C gradually descend as the bar moves under the brushing roll $D^1$. But it also states that "in this manner" a brushing action is produced. Assuming, as your question does, that the shaft rotates in the direction of the arrow *z*, the descent would occur when the frame C swings from the position shown in Fig. 2 to the position shown in Fig. 1. Therefore, the stretcher-bar—that is, the material on the stretcher-
127 bar—would be brought into contact first with the brush $D^1$, taking a concave course, and then going to the brush D, and this would seem to be the most reasonable interpretation to be given to the specification, although, as I have before stated, the

patentees either do not say or did not know which mode of operation should be pursued.

X Q. 131. Do you consider the word "is" as synonymous with the words "can be"?

A. I do not consider that the word "is" is anything more than a reference to the shape of the cam shown in the drawing.

X Q. 132. My question inquires whether you understand the word "is" as synonymous with the words "can be," without reference to any connection?

A. I do not.

Adjourned to to-morrow, March 19th, at 10 a. m., at the same place.

NEW YORK, *March* 19, 1902.

Met pursuant to adjournment.

Present: Counsel as before.

Cross-examination of the witness CHARLES E. FOSTER continued:

X Q. 133. Now, in answer to X Q. 130 you said that the specification of the Lake English patent says, in paragraph commencing on page 3, that the uprights C gradually descend as the bar moves under the brushing roll D[1] and also states that in this manner a brushing action *is* produced. I presume that you have reference to the statement contained on lines 10 and 11 of page 3 and I call your attention to the fact that in this clause it is not stated that in this manner a longer or shorter brushing action *is* produced, but it is stated there that in this manner a longer or shorter brushing action *can be* produced. Kindly explain why you did in your answer referring to the statement of the specification substitute the term "is produced" for the term "can be produced" contained in the specification.

A. I had no special purpose. I was not attempting to quote literally, as my answer shows, and my answer would have been practically the same if the words had been "can be" instead of "is." If the brushing action could be produced under the conditions named, the word "is" would naturally be used in describing an operation actually taking place at a special time, which I had in mind when I assumed said operation in my answer.

X Q. 134. Is it your understanding of the specification of the Lake English patent that the descending motion of the stretcher-
128 bar in the machine of the Lake patent was provided for the purpose of producing a brushing action by the brush D?

A. I have before stated that the specification is so obscure that no one can state with certainty what was intended to be meant. There is a statement that there is to be a brushing action, but there is nothing stated as to why the descending motion of the bar was used in this condition.

X Q. 135. The paragraph wherein these matters are explained commences on page 3 of the specification of the Lake English patent

with the following words: "When two brushes are used, as represented, it is desirable that the fur should escape from the brush intermediate between the cutters and the other brush, consequently the shaft C¹ is mounted on the eccentric bearing as above stated," &c. Then follows the description of the mechanism for raising and lowering the stretcher-bar and then it is said that this mechanism "causes the upright C to gradually descend as the bar moves under the brushing roll D¹, and thus it describes a curve like a concave to the roll." I understand from this statement that the descent of the stretcher-bar is produced for the purpose of permitting the fur on the stretcher-bar to escape during one swing of the stretcher-bar the intermediate brush D¹ when two brushes are used. And the statement contained in the specification in connection with the before-recited part, viz., that "in this manner a longer or shorter brushing action can be produced," I understand to refer to the construction of the mechanism whereby the descent of the stretcher-bar is produced in one swing of the stretcher-bar and the ascent during the other swing of the stretcher-bar. This appears to me to be shown clearly by the next following sentence of the specification: "By such a construction only one revolving brush may be required," &c. Kindly state whether this explanation does or does not show to you that your understanding of this paragraph of the specification of the Lake patent as heretofore given by you is not correct.

A. I never stated that I had any distinct understanding of this paragraph of the Lake patent. You asked me to assume that the shaft turned in the direction of the hands of a watch, and on that assumption to state what might be the operation intended to be described; but I do not consider that there is any warrant for that assumption, nor do I, after reading your question and considering this paragraph, see that the matter is any more fixed as to what was really intended that I have heretofore stated. Taking the clauses to which you refer, it might apply that the brush D¹ per-

129 formed no function whatever, for it states that when two brushes are used "it is desirable that the fur should escape from the brush intermediate between the cutters and the other brush," and at the end of the paragraph: "By such a construction only one revolving brush may be required." This would imply that the brush D¹ was to be dispensed with; but further on, on lines 22 and 23, page 3, it states that one brushing roll may answer the purpose, "and in this case the one at D * * * may be dispensed with." This simply shows, what I have stated before, that the whole description is so mixed up as to be practically unintelligible. Further in this connection, where reference is made to the descent of the stretcher-bar, it states that this gradual descent occurs "as the bar moves under the brushing roll D¹ and thus it describes a curve like a concave to the roll, and *in this manner* a longer or shorter brushing action can be produced." Certainly this description refers to the action of the brushing roll D¹. What it means by a longer or shorter brushing action is very uncertain, but, as I have before

stated, it may refer to the fact, that comes in subsequently, that sometimes one roll and sometimes two rolls may be employed. No one can state positively what is meant. I understand, I think, the terms of the description, as I understand the drawing, but what the operation intended to be described is I do not believe anyone could understand.

X Q. 136. I am well aware that you do not seem to be able to understand the statements made in the specification of the Lake English patent and my effort is directed to show to you in what respects your understanding of the specification of the Lake patent is insufficient or wrong. If I understand your answer correctly, you seem to have the idea that the inventors of the machine set forth and illustrated in the Lake English patent intended to describe a machine wherein two brushes are shown, of which brushes one should not have any operative action or any action at all upon the pelt, and at the same time saying that the other brush can be dispensed with. Kindly consider this proposition and state whether or not such an interpretation of the specification of the Lake patent appears to be absurd and impossible, and then considering again the paragraph of the specification we have been discussing, consider whether or not such interpretation as I have stated in the preceding question is the interpretation that should be given to it.

A. I do not think your question puts my position correctly, I do not have the idea "that the inventors intended to describe
130 a machine wherein two brushes are shown, of which brushes one should not have any operative action," but I pointed out that the language is so obscure that it might be read in this way about as well as you could read it in any other way. The language does not give, as I have repeatedly said, any certain indication as to what the patentees did mean.

X Q. 137. You also stated in your answer to X Q. 135 that because I asked you to assume that the cam Y and the crank shaft G rotate in the direction of the hands of a watch in the machine of the Lake English patent (for which assumption you state there is no warrant in the specification of the Lake English patent) you cannot agree that the meaning of the explanation in the descriptive part of the specification is such as I endeavored to show you. Kindly state whether you consider that in the description of a machine like the machine of the Lake English patent it is essential that it should be explained in what direction the cam and shaft should rotate.

A. My statement to which you refer sets forth that there is no warrant in the specification of the Lake patent for assuming that the shaft must turn in the direction of the hands of a watch. That is, there is nothing in the specification which makes or indicates positively this direction of movement, although, taking the entire operation together, it might be the most probable one under the conditions which I before stated, where the stretcher-bar on its movement to the left came in contact with the brush $D^1$ and descended under it with a curve, securing a brushing action, so far as

such action could be had by the character of card-clothing employed. Where the operations would be different if the shaft was turned in one direction from what they would be if it was turned in the other, it was certainly incumbent on the patentees to communicate in their specification this essential requisite. My purpose in calling attention to this and other insufficiencies and discrepancies in the Lake patent has been to point out that obviously the drawings and descriptions were not based upon a machine which had been practically operative, but were theoretical.

X Q. 138. Do you consider it essential that in a description of a machine like the machine of the English patent to Lake it should be pointed out in what direction the shaft and the cam are to rotate, and do you believe that because a description of such a machine does not explicitly point out in what direction the shaft and the cam are to rotate, a mechanic familiar with the art could not construct such a machine from the drawings and specification of the Lake English patent.

131 A. I do consider that it is essential that a patentee shall point out all the essential characteristics of his machine so clearly that those who read the description and drawing may know both its construction and operation, not leaving it open for doubt. I do not believe that a mechanic familiar with the art could construct a machine from the description and drawing of the Lake patent to practically operate, for the reason that this has never been done, although there seems to have been every reason why it should be done, if possible.

X Q. 139. You have not answered my question responsively. I asked you to state whether you believed that because a description of such a machine does not explicitly point out in what direction the shaft and the cam are to rotate, a mechanic familiar with the art could not construct such a machine from the drawings and specification of the Lake English patent.

A. Your question assumes that the only insufficiency in the Lake patent was a failure to describe the proper direction of movement of the shaft. Undoubtedly a mechanic could construct from the Lake patent a machine that would have every feature shown in the drawing, and he could do this regardless as to the direction of movement which might thereafter be imparted to the shaft. I do not mean to say that this construction, if so made, would embody the operations of the specification, assuming that they could be understood.

X Q. 140. I did not ask you to state what you think I did assume in my question. I asked you plainly to state whether in your understanding the circumstance that in the description of the Lake English patent it is not explained whether the shaft and the cam are to be rotated in the direction of the hands of a watch or reversely thereto, a mechanic familiar with the art could not for this reason construct and operate such a machine as shown and described in the Lake English patent.

A. I answered that question fully in my last reply. I can only

practically repeat that any mechanic skilled in the art, or any skilled mechanic, could construct a machine exactly like the drawing shown in the Lake patent and could operate it. How he could operate it is a different matter. I could not say that he could operate it in the manner described, because I do not believe anyone could know just what the description is intended to be. I have before stated as to what might be its possible and probable operation under one assumption.

X Q. 141. I have repeatedly discounted your own personal inability to understand the description of the Lake English patent and I did not ask you in my question to give your understanding of your views as to the possibility or impossibility of operation of such a machine in the manner described in the Lake English patent. I merely asked you to state whether your understanding is such that because it is not stated in the Lake English patent in what direction the shaft and the cam are to be rotated, a mechanic familiar with the art would be unable to construct from the drawings and description of the Lake English patent such a machine as shown and described therein.

132

Complainants' counsel objects to the form of the question as misleading, and, furthermore, because it has been repeatedly answered. He specifically objects to the following assumption: First, that on or about June 28, 1881, there were mechanics familiar with unhairing machines. There is no evidence that there were: on the contrary, the evidence in the case thus far is that there were not such mechanics in existence. Secondly, the question is, assuming that there were mechanics familiar with unhairing machines at this time, whether such mechanics could make a Lake machine properly unhair fur skins. The witness has repeatedly said that mechanics following the drawings could build a machine and that they could make the shaft and cam rotate in either direction, if they saw fit. That reply of his is responsive to the real interrogation, but counsel seems to persist in repeating his question with a view of having the witness say, directly or indirectly or inferentially, that such a machine would be "an operative device." Now, that is the whole question what is mea-t by "operative device." No doubt a mechanic building a machine like the drawings could make the stretcher-bar move back and forth, and therefore in one sense this would be an operative machine; but in the real sense, as the words "operative device" are understood in this connection, it would by no means follow that such an operative device could unhair fur skins.

Defendants' counsel gives notice that he shall move to have the argument of complainants' counsel, injected in this record under the pretense of an objection, stricken out as improper.

And complainants' counsel gives similar notice that he shall move to strike out from most of the questions put by examining counsel statements as to what examining counsel understands, and likewise the examining counsel's opinion as to the

133

proper interpretation of the Lake patent, because it is in the nature of testimony.

A. The court will see that all of your questions bring the description of the English patent in as a factor, and I therefore am obliged to point out that I cannot recognize that this description would give any positive instructions to the mechanic. I think I have fully answered your question as to whether or not a mechanic, even one not familiar with the art, could construct what is shown in the drawing and operate it in some way.

X Q. 142. Please look at "Defendants' Exhibit Foster's Marked Drawing" and say whether you have marked in both of the figures of the drawing the same point of cam Y indicated by you with numeral 2 with reference to your testimony on the subject.

A. The point 2, Fig. 1, is the lifting point if the cam is assumed to be turned in the direction of the hands of a watch. The point 2 in Fig. 2, which is the other side of the depression, would be the lifting point if the cam turned in the opposite direction. This was the point referred to in connection with the description in Fig. 2. It is a question of the direction of movement as to which of these points at each side of the depression is the lifting point. The figure 2 in Fig. 1 indicates one of the lifting points, and the same figure 2, in Fig. 2 indicates the other of the lifting points. By lifting points I mean the cam lifting points, not the lifting of the stretcher-bar.

X Q. 143. Do I understand you to say that in Fig. 1 of the Exhibit "Foster's Marked Drawing" you intended to mark the point 2 as the first lifting point of the cam coming in action when the cam is rotated in the direction of the hands of a watch?

A. I will have to refer to my testimony to answer that question. I intended to refer to the lifting point which meets the end of the lever $X^2$ to throw it to the right according to the direction in which the cam turned. If the cam turned in the direction of the hands of a watch, the point at the left as indicated by 2, Fig. 1, would be the lifting point. If the cam turned in the opposite direction, the point at the right would be the lifting point. I assumed my prior answers made this clear.

X Q. 144. In your answer to X Q. 142 you say: "The point 2, Fig. 1, is the lifting point if the cam is assumed to be turned in the direction of the hands of a watch." I understand that the direction of the hands of a watch is from left to the right or in the direction indicated by the arrow marked $z$ in Fig. 1, and upon this
134 statement I ask you to state whether the point marked 2 by you in Fig. 1 of "Foster's Marked Drawing" of the Lake patent is the first lifting point of the cam in the sense as you understand in your testimony.

A. Assuming the cam to be moved in the direction of the arrow $z$, the upper end of the lever $X^2$ will descend into the recess and then be lifted by the point 2. I think this answers your question.

X Q. 145. If that explanation is correct, then I think that the in-

dication of the direction of the rotation of the cam as made by you with reference to this point 2 in Fig. 1 is not correct.

A. It would depend upon my testimony. It is in the stenographer's notes and I would have to examine it. It would practically make no difference whether the line 2 was drawn to the right or the left of the depression. It would be understood that the lump or projection beyond the depression would be the lifting point. Just how I expressed it in my testimony I cannot tell. The testimony assumed various directions of movement and it would require exact reference thereto to know just which side of the depression I referred to as the projection 2 in considering any particular movement.

X Q. 146. In your answer to X Q. 142 you said: "The point 2, Fig. 1, is the lifting point if the cam is assumed to be turned in the direction of the hands of a watch." If this explanation is correct, then the arrow marked *b* in Fig. 1 by you in connection with this point is wrong, because it is not indicative of the direction of the hands of a watch.

A. I would like to see my testimony wherein I placed that arrow at that point.

I have read my answer to X Q. 83, which gives the operations perfectly correctly; but the arrow *b* in that answer was assumed to be in the opposite direction from the arrow *a*, but being above the shaft it was inadvertently put in the same direction. It should point to the right. The description of the operation was correct, because it stated that the arrow *b* indicated a reverse direction from the arrow *a*, and the arrow *b* was so intended.

X Q. 147. The arrow *b* as given in Fig. 1 of the Exhibit "Foster's Marked Drawing" indicates a direction reverse to the direction of the hands of a watch, does it not?

A. Yes.

X Q. 148. The arrow *b* in relating to point 2, Fig. 1, of "Foster's Marked Drawing," should point in the same direction as the arrow *z* marked in that figure should it not?

A. It should to agree with the statement in my answer as to which direction it actually did point. In my answer it was assumed to point in the direction of the hands of a watch.

135 X Q. 149. In that operation, as you have explained the cam revolving in the direction of the hands of a watch indicated by the arrow *z* in Fig. 1, the lifting of the point 2 of the cam as marked by you is only to the extent of returning the stretcher-bar after the ascent it made to what I have designated as its normal path, is it not?

A. It is what you have assumed to be the normal path.

X Q. 150. The effect on the stretcher-bar of the co-action of the point of the cam Y marked 2 in Fig. 1 with the pin set in the upper end of lever $X^2$ will be to cause the stretcher-bar, which immediately preceding that co-action has risen, to recede, will it not?

A. It will; but the term "immediately" must not be considered

to be instantaneous. There is quite a movement of the parts between the time when the stretcher-bar begins to rise and the time when it begins to descend. I am assuming that the cam moves in the direction of the arrow *z*.

X Q. 151. I understand that the motion of the stretcher-bar is not instantaneous but gradual, and it is also so described in the specification of the patent with reference to the descending motion of the stretcher-bar. I also understand that the conformation of the cam is such that the motion must be necessarily gradual, and it was not my intention in the question to use the word "immediately" in that sense as you have taken it in your answer. I meant to indicate that before the co-action between the point marked 2 in Fig. 1 and the pin in the upper end of lever $X^2$ the stretcher-bar was ascended and that the result of the co-action of this point 2 with the lever $X^2$ is to return the stretcher-bar to what I have designated its normal path. Kindly answer the question with this explanation.

A. The effect would be to cause the stretcher-bar, which had risen gradually, to recede gradually.

X Q. 152. The effect of the co-action of the point marked 1 by you in Fig. 1 of "Foster's Marked Drawing of Lake Patent" with the pin set in the upper end of lever $X^2$ is to recede the stretcher-bar below what I termed its normal path, or, with other words, as stated in the specification of the Lake patent, page 3, line 9, to gradually descend, is it not?

A. I would answer your question in the affirmative, understanding that by so doing I make no statement as to the direction of movement of the cam in connection with the part of the description to which you refer. In any case the point 1 will throw the upper end of the lever $X^2$ to the right and cause a descent of the stretcher-bar.

136 X Q. 153. If the point marked 1 by you in Fig. 1 of "Foster's Marked Drawing" will "throw the upper end of the lever $X^2$ to the right and cause a descent of the stretcher-bar," in any case, what is the object of your making the reservation in your answer as to the assumption or assertion of any direction in which the cam revolves?

A. Simply to avoid any misconstruction being placed upon my answer, because you refer to a part of the specification which we have before had under discussion, under your assumption of a certain operation, while I cannot agree with you that the description is clear enough to base any assumption upon with positiveness.

X Q. 154. I have quoted the words "to gradually descend" from the specification of the Lake patent solely as indicating the kind of the motion which is imparted to the stretcher-bar, to avoid another explanation, as was necessary in view of my use of the word "immediately" immediately preceding. I had no intention to specify any direction or to draw into the question anything else except the effect of the co-action of that point marked 1 by you in Fig. 1 in "Foster's Marked Drawing." Now, with this explanation, please

kindly say whether or not the co-action of this point 1 marked by you in Fig. 1 of "Foster's Marked Drawing of Lake Patent" causes the stretcher bar to descend beneath what I have designated as its normal path.

A. With that explanation I answer your query in the affirmative.

X Q. 155. The receded portion of the cam Y contained between the points 2 as marked by you in Fig. 1 and Fig. 2 of "Foster's Marked Drawing of Lake Patent," when coming in co-action with the pin set in the upper end of lever $X^2$ produces an ascent of the stretcher-bar above what I have designated as its normal path, does it not?

A. My reply is yes, as I have heretofore stated.

X Q. 156. The point marked 2 by you in Fig. 2 of the Exhibit "Foster's Marked Drawing" produces the same effect in co-action with the pin in the upper end of lever $X^2$ as the point marked 2 by you would in Fig. 1 of the same exhibit?

A. As I have before stated, it depends upon which direction the cam is assumed to be moving. In one direction of movement of the cam one of the points is a lifting point; in the other direction the other is the lifting point, as I before pointed out. That is, either of these points becomes the point 2 and performs the same function, according to the direction of movement of the cam.

137 X Q. 157. But each of these points effects the returning of the stretcher-bar to what I designated its normal path from the ascent produced by the preceding depression, assuming, of course, that the cam is rotated in such direction that the pin in the upper end of lever $X^2$ comes first in contact with the depressed portion of the cam?

A. That is another way of stating what I have just stated and it is correct.

X Q. 158. Of all the points that we have considered and which you have marked in the Exhibit "Foster's Marked Drawing" there are only the point marked 1 by you in both figures of the drawing and the depression between the two points 2 which produce a raising or lowering of the stretcher-bar above or below the line which I have designated as the normal path of the stretcher-bar?

A. So far as I can tell that is the case, except, as I have before pointed out, there is nothing to show the shape of the cam groove below the end of the connecting rod F and the crank arm, which obscures a large section of said groove in both positions of Figs. 1 and 2.

X Q. 159. In your answer to Q. 10, when enumerating the features wherein defendants' machine differs from the machine of the Lake English patent, you stated: "In defendants' machine the end of the connecting rod F is pivoted inside the groove of the cam at the end of the shaft G, while in the Lake construction it is pivoted outside of the groove." I cannot quite understand the meaning of this statement and ask you to explain that to me with reference to

the specification and drawings of the Lake English patent and defendants' machine, which is now before us.

A. Taking the defendants' machine and adjusting it so that the crank pin is at the lifting center of the shaft, as in Fig. 1, and holding this figure of the Lake drawing before me while looking at the end of the machine, I see that in defendants' machine the crank pin has its axis between the center of the shaft and the edge of the cam groove at the left, while in the Lake drawing, Fig. 1, the axis of the crank pin is at the left of said edge of the cam.

X Q. 160. Now, I understand from your explanation that in defendants' machine the crank of the shaft G is shorter than the crank shown in the drawing of the Lake English patent. Is that so?

A. That is correct.

X Q. 161. So the difference between the defendants' machine and the Lake English machine which you intended to point out
138 by the recited part of your answer is that in defendants' machine the crank is shorter than the crank shown in the drawing of the Lake English patent?

A. That is one way of stating it. I was comparing the appearance upon the drawing with the appearance of the machine, which is another way of stating it.

X Q. 162. But the practical meaning of both is the same?

A. I have so stated.

X Q. 163. Further on in your answer to Q. 10 you stated as one of the features in which defendants' machine differs from the machine of the Lake English patent: "In defendants' machine the cam on the shaft G is set upon the shaft a number of degrees further in the direction of the movement of the hands of a watch than in the Lake machine, thus altering the timing of the parts." Please look upon the defendants' machine now before you and explain to the court the timing of which parts of the machine is altered by this setting of the cam a number of degrees further in the direction of the hands of a watch.

A. The court can itself recognize the meaning of my statements by comparing the position of the parts shown in Fig. 1 of the Lake patent with those of the defendants' machine adjusted so that the crank pin is in its extreme left position. This shows what I intended to point out in my answers, referring to a difference in the timing of the parts, because the pawl $N^4$ in the drawing is very far at the right from the ratchet wheel O, which has long since ceased its operation, while in defendants' machine the pawl is in direct engagement with the wheel O and only ceases its operation as the machine is brought to the position shown. Further, in Fig. 1 of the Lake patent, the upper end of the lever $X^3$ is distant nearly a quarter of a circle from the depression in the cam, while in the defendants' machine it is upon one of the projections at one side of said depression. Now, turning the shaft of defendants' machine to carry the crank pin to its extreme position at the right, and comparing it with Fig. 2 of the Lake patent, the projection correspond-

ing to the projection 1 of the Lake patent is nearly in contact with the end of the lever $X^2$, while in Fig. 2 of the Lake patent it is considerably more than a quarter turn of the cam distant therefrom, so that in Fig. 2 of the Lake patent, assuming the shaft to turn in the direction of the hands of a watch, the point 1 will not operate till the cam has turned more than a quarter revolution, while in defendants' machine it would be almost immediately brought into operation. These are the main differences in timing to which I have referred.

Recess.

139 X Q. 164. How is the position of the pawl $N^4$ affected by the shifting of the cam Y in defendants' machine, or in what respect is the operation of this pawl affected by any change in the position of the cam Y on the shaft G?

A. The position of the pawl $N^4$ is not affected in any way by the shifting of the cam and its operation is not affected in any way by the shifting of the cam.

X Q. 165. You have referred in your answer to my preceding question when explaining what the differences in timing are effected by the shifting of the cam in defendants' machine to the pawl $N^4$, saying that the "pawl $N^4$ in the drawing is very far at the right from the ratchet wheel O, which has long since ceased *its operation*, while in defendants' machine the pawl is in direct engagement with the wheel O and only ceases its operation as the machine is brought to the position shown." For this reason I ask you to explain what connection, if any, there is between this different position of the pawl $N^4$ in defendants' machine from the one shown in the drawing of the Lake patent and the shifting of the cam Y on the shaft G.

A. I had no intention in that answer of connecting the operation of the pawl with the timing effected by shifting the position of the cam, but was pointing out the different of timing between the construction shown in the Lake patent and defendants' machine. I misunderstood your question, which I see on re-reading was limited only to the timing effected by turning the cam to a different position. I referred to my answer to Q. 10, which referred to the timing of the different parts in the machine, whereas I should have limited it only to the timing of the cam. Of course the shifting of the cam would result in the feed of the fabric taking place at a different position of the height of the stretcher-bar, but I did not have this in mind at the time I gave my answer.

X Q. 166. The statement made by you in answer to Q. 10, and which I have recited in X Q. 163, states expressly that the timing of the parts of the defendants' machine is altered by the setting of the cam Y on the shaft G a number of degrees further in the direction of the movement of the hands of a watch, and there is no reference whatever in that statement to any change of timing produced by any other means. Your answer to that question makes it, to my understanding, appear as if you had expressed that the change in

the position of the pawl $N^4$ relatively to the ratchet-wheel O results from the shifting of the cam, and therefore I ask you to state, without reference to any other matters, whether this different position of the pawl $N^4$ relatively to the ratchet wheel O and the posi-
140 tion of the parts of the machine described in your answer to X Q. 163 is or is not the result of the shifting of the cam on the shaft G?

A. My answer to X Q. 163 was given after a considerable interval of time after it was asked, resulting from a discussion between counsel, and without the question being repeated I assumed it to be somewhat broader than it was and to refer to the timing of the different parts of the machine about which I had previously testified, one of which was that the timing of the pawl had been changed. There is no material connection between the action of the pawl and any change in the timing of the cam.

X Q. 167. Further on, in your answer to Q. 10, enumerating the differences between defendants' machine and the machine of the English patent to Lake, you say: "In defendants' machine the stretcher-bar never passes beneath the brushing roll, while in the Lake it travels back and forth beneath the roll $D^1$ and in both directions, even if but a single roll be used." Kindly explain what you meant to say by the statement that in defendants' machine the *stretcher-bar never* passes beneath the brushing roll.

A. In defendants' machine, as will be seen from looking at the end of the machine and turning the same to carry the stretcher-bar to its extreme left position, the latter simply passes up into contact with the brush—that is, the material upon it would be brought into contact with the brush—at the right-hand side of the same and a short distance to the left of a vertical plane touching the roll on its right-hand edge. I do not consider that this movement is a movement in which the bar passes beneath the brushing roll as the bar passes beneath the brushing roll in the direction of the Lake machine, where it travels not only *to* the roll, but *under* it and away from it at the opposite side. I was making that comparison which the court would make in looking at the end of the machine and examining its movement and looking at the figures in the drawings of the Lake patent and examining the movement indicated by the two positions of the parts.

X Q. 168. If I understand your explanation correctly, you wish to say that the difference between defendants' machine and the machine shown and described in the Lake English patent in this respect is that whereas the two figures of the drawings of the Lake English patent show that the stretcher-bar travels past the brush $D^1$ to the brush D and from the brush D past the brush $D^1$ to the cutters, in defendants' machine the stretcher bar is made to travel only from the cutters to the brush $D^1$ and from the brush $D^1$ back to the cutters. Is my understanding of your explanation correct?

141 Complainants' counsel objects to this alleged and erroneous summary of the wi-ness' testimony. He also objects to the

expression "past." No one has testified—not even defendants' counsel, that the machine of the Lake drawings is one in which the stretcher-bar, leaving the knives and returning to the knives on both trips, remains out of contact with the roll $D^1$. As defendants have not taken any testimony, they have not committed themselves upon the point whether the stretcher-bar in leaving the cutters first contacts with $D^1$ and on the return trip escapes contact with $D^1$; but in defendants' machine they show a construction in which the stretcher-bar, on its passage to the knives or cutters, contacts with the stretcher-bar.

Complainants' counsel protests against this testimony *given by* defendants' counsel in the shape of questions.

Defendants' counsel states that he does not consider it opportune to instruct complainants' counsel at this stage of the case either as to the ordinary meaning of words of the English language nor about the position of defendant- upon the issues in this controversy, but he considers complainants' counsel's wholly unwarranted and — unnecessary interruption of the examination and encumbering the record with arguments, under the guise of objections to questions, and gives notice that he shall move to have the remarks of complainants' counsel stricken from the record.

A. I would prefer to state it a little differently, that comparing the construction illustrated in the drawings of the Lake machine with that of defendants' machine, the stretcher-bar in the defendants' machine travels back and forth between the cutters and the periphery of the roller $D^1$ at a point one side, and below the center, while in the construction of the Lake drawings the stretcher-bar travels from the cutters in a path below the roller $D^1$ and to the roller D and back to the cutters. I have not taken into consideration in this answer the exact path of the stretcher-bar in respect to the roller $D^1$, as that has already been considered exhaustively.

X Q. 169. Is it your opinion that in building a machine according to the specification and drawings of the English patent to Lake, in which only one brush is used, the brush D being omitted, as suggested on line 22 *et seq.*, page 3 of the specification, it is required that the stretcher-bar should be reciprocated back and forth to the
142 same extent as shown in the drawings of the Lake patent in a machine where both of the brushes $D^1$ and D are employed?

A. Practically, yes. By practically I mean that the stretcher-bar should be reciprocated to such an extent as to give the same action with the brush at $D^1$ as is secured by the brush at $D^1$ in the two-brush machine, and therefore the stretcher-bar should be carried to such an extent that it will pass about the left beyond the brush at $D^1$. The specification, I would point out, states that it is the brush "at D" which may be dispensed with. This does not indicate any purpose whatever to alter the operations which take place in connection with the brush at $D^1$, and therefore the stretcher-bar should be given all that extent of movement necessary to secure the operation

which results from its co-action with the brush at $D^1$. If the patentees intended anything different from this, there is nothing in the specification or description to indicate it, for they suggest no other alteration than dispensing with the brush at D.

X Q. 170. Complainants' witness Mischke, when asked whether the Lake patent contains the statement that the crank arm is to be shortened when the D brush is dispensed with, answered that common sense would show to any half a machinist what to do. I assume that you understand that the fact that in defendants' machine the stretcher-bar does not swing beyond the brush $D^1$ is due to the fact *that the crank motion actuating the frame C supporting the stretcher-bar* is shortened, and ask you to state whether in your opinion such a shortening of the swing of the stretcher-bar in such a machine as shown and described in the Lake English patent, in which only the intermediate brush $D^1$ is used, is something requiring specific invention outside of the scope of what is shown and explained in the Lake English patent.

A. Your question is necesarily misleading. If the shortening of the stretcher-bar resulted in no material difference in effect, such shortening would, of course, involve nothing in the way of invention; but if the shortening alone resulted in a material difference in effect, it might involve invention, just as the loading of the Reiss diaphragm converted it into the Bell telephone, which was held to involve invention. But if your question assumes that the only difference between the defendants' and the Lake machines in substituting one brush for two was in shortening the crank arm to reduce the stroke, I cannot accept this assumption, because in addition
143 the roll at $D^1$ in defendants' machine is set further down, so that the stretcher-bar only contacts with the roll at the periphery thereof and does not travel beneath it and to the other side, but co-acts with it in the manner in which the stretcher-bar co-acts with the roll at $D^1$ in the machine illustrated in the drawing of the Lake patent.

X Q. 171. So far then, if I understand your explanation correctly, you believe that because in defendants' machine not only the swing of the stretcher-bar was shortened, but also the brush $D^1$ is set lower so as to meet the stretcher-bar instead of allowing the stretcher-bar to pass beyond this brush $D^1$. This shortening of the swing of the stretcher-bar in conjunction with the setting lower of the brush $D^1$ involves more than a mechanic skilled in the art could be expected to accomplish with the information contained in the drawings and specification of the Lake English patent, when constructing such a machine wherein only the intermediate brush $D^1$ alone is to be used.

A. I am of the opinion that it involves much more than a mechanic would be expected to do in carrying out a suggestion to dispense with the brush at D. Of course I recognize that other changes have been made in defendants' machine in order to make use of a single brush, which I have before called attention to. In my opin-

ion the changes involve a substantial departure from anything that could be expected to be made in carrying out the suggestions of the Lake patent, resulting in a wholly different action of the brush D from anything that can be assumed in connection with the description of the Lake patent. And in view of these changes, as I have before stated, I cannot consider that defendants' machine is a one-brush Lake machine, for in my opinion it is not; but there are imported into defendants' machine adjustments and movements which I cannot find any warrant for in the Lake patent.

X Q. 172. This opinion of yours is based upon your understanding of the specification and drawings of the Lake English patent as you stated in your preceding deposition, is it not?

A. It is based upon the comparison of the drawings of the Lake patent with the construction of defendants' machine and upon such parts of the description of the Lake patent as can be understood without doubt.

X Q. 173. By the words "as can be understood" you mean to say those parts of the specification which you believe you understood, do you not?

A. I refer to those statements in the specification about which there can be no question. As an illustration, it is stated that
144 the brush at D may be dispensed with. There can be no possible misunderstanding about this. I think I am capable of understanding written descriptions as most persons familiar with the examination of descriptions and drawings of inventions, and see no reason why any description which would be clear to anyone else would not be clear to me. I may further add that it is not an uncommon thing in examining descriptions of machines or proposed machines contained in printed and other documents to find that the patentees have used language in such a confused way that it is impossible to know what they mean, and I regard the Lake patent as an illustration of this.

X Q. 174. I have no doubt that an expert may contend that the words of the description of any patented structure can be given a different meaning than the one intended by the patentees or fairly inferable from the language of the specification to a mechanic familiar with the art, and it was not my intention to question in my preceding question your understanding or the understanding that you have given in the course of this examination of the specification and drawings of the Lake English patent. I merely asked you to state whether the opinion that you have expressed as to whether defendants' machine is or is not a one-brush Lake machine is based solely upon your own personal understanding of the specification and drawings of the Lake patent.

A. It is based upon my understanding of the drawings and description of the Lake patent, so far as I understand it, in comparison with defendants' machine.

X Q. 175. Would you consider the changing of the configuration of the cam Y in such manner as, for instance, would increase the

depression in the cam to such an extent as would produce a corresponding increase in the ascending motion of the stretcher-bar about one-quarter or three-sixteenths of an inch higher than could be produced with a cam shaped exactly as shown in the drawing of the Lake English patent, such a radical departure from the Lake English machine as shown and described in the Lake English patent as you consider the setting lower of the intermediate brush $D^1$ in defendants' machine?

A. I could not give an answer to that which might not be misleading, unless I had before me a machine involving just the change indicated, which I have not. If such a change was not accompanied by any substantial difference in function or operation of any of the parts, it might not be a radical departure. It would depend altogether upon the effect of the change as to whether it constituted a radical departure or not, and I could not answer
145 the question categorically without knowing what the effect was and whether or not there were other changes in this connection.

X Q. 176. In further stating the features in which defendants' machine differs from the machine of the Lake English patent in your answer to Q. 10, you state: "In defendants' machine the stretcher-bar is made with a comparatively sharp edge which naturally tends to facilitate the separation of the fur, while in the Lake machine the stretcher-bar has a rounded edge which does not tend to secure this result. I call your attention to "Complainants' Exhibit Cimiotti Patent," and more particularly to the feature B in Figs. 1 and 2 of the drawings thereof, which is described on line 52, page 1, of the specification, as a fixed knife-edged bar, and I ask you to state, taking regard to the circumstance that this Exhibit "Cimiotti Patent" antedates the Lake English patent, whether a mechanic familiar with the art at the time of the Lake English patent was or was not at liberty to use such a knife-edged bar in the construction of the Lake machine, if he saw fit to do so, as shown in this prior Cimiotti patent.

A. I will assume that any mechanic is entitled to use what may be in the prior art without attempting to give an opinion as to what is the prior art in answer to this question. The answer to which you refer, however, was an answer in which I was comparing the construction of defendants' machine and the Lake machine with a view of pointing out whether they were alike or unlike, and I found that in the construction of the Lake machine, the drawing of which is said to be one-third actual size, the stretcher-bar had a very blunt rounded edge which would not facilitate the spreading apart of the hairs like a sharp edge would do, and therefore pointed out these differences in construction.

Adjourned to Wednesday, March 26, 1902.

WASHINGTON, D. C., *Mar.* 26, 1902.

Met pursuant to adjournment.
Present: Counsel as before.

Cross-examination of Mr. FOSTER continued:

X Q. 177. Are in the defendants' machines the functions of the cam on the end of the shaft G and of the eccentric bearing in the frame A with the connecting part dispensed with?

A. These *parts* are not dispensed with. I would say that their functions are dispensed with to the extent to which they are
146 altered as I have before pointed out, because I regard the word "functions" as indicating the performance of the same effects at the same time, and in defendants' machine the same *defects* are not performed at the sames times by these parts as in the Lake machine, which I assume is referred to in your X Q. 177.

X Q. 178. Now, if I understand your explanation correctly you base the statement in your direct testimony that in defendant's machines the functions of the cam on the end of the shaft G and of the eccentric bearing in the frame A with the connecting part are dispensed with—because, as you stated, the timing of the actions of these parts is changed. Is my understanding of your explanation correct?

A. I made no such statement in my direct testimony. In answer to Q. 10, I referred to the fact that in the Lake patent there was no statement (when one roll is to be used) that the functions of the cam on the end of the shaft G and the eccentric bearings in the frame A with the connecting parts are to be dispensed with. This was simply a part of the answer wherein I pointed out that any machine to be a Lake machine must necessarily have these parts operating in the way pointed out in the specification of the Lake patent, whether one or two brushing rolls was employed.

X Q. 179. You made a statement in connection with the enumerating of the features wherein defendant's machine differs from the machine of the Lake patent and I naturally assumed and understood from the wording of your answer that this was stated as one of the features in which defendant's machine differed from the machine of the Lake patent?

A. That was not the purpose of my statement.

X Q. 180. Kindly state whether you meant merely to point out that the functions of these mechanisms, of the cam on the end of the shaft G and of the eccentric bearings in the frame A with the connecting parts, are only differently timed in defendants' machine; by differently I mean that the timing of the parts in defendants' machine is different from that as you understand it to be in the machine of the Lake patent?

A. To say what I meant would practically require me to repeat my previous answer. I will endeavor to epitomize it by stating that I pointed out that in defendants' machine the roll D had practically

been transferred to the position of the roll $D^1$ with very much of the same action that results in the Lake machine with the roll D, except that a certain rising movement was given to the stretcher
147 bar in defendants' machine, which does not take place in connection with the roll D in the Lake machine, and that I found in the Lake patent, however, that when one roll was to be dispensed with it was to be the roll at D, which is the farthest away from the cutter, and that I thus understood that in dispensing with the roll at D, there was of course to be a dispensing with the peculiar function or action of the roll at D. So far as the roll D is concerned, the cam and connected parts are not stated to have any function, and I pointed out that there would be no warrant in placing a roll at $D^1$ having the function of the roll at D and practically dispensing with the action of the cam. I did not regard that the action of the cam had been dispensed with in defendants' machine, but that it had been so changed in effect that the roll at $D^1$ was made to perform practically the function of the roll at D.

X Q. 181. I call your attention to the fact that in the specification of the Lake English patent, page 3, line 11, it is stated, in a sentence which follows the description of the mechanism whereby the rising and descending motion of the stretcher bar is described, that—

"By such a construction only one revolving brush may be required"

and I ask you to state whether to your understanding of the specification of the Lake English patent, this statement does not convey the meaning that the dispensing with the brush at D, the farthest from the cutters, was to be accomplished by means of the mechanism for raising and lowering of the stretcher bar?

A. I have before pointed out that the portion of the Lake specification to which you refer, including that part which you quote in connection with other parts, conveys to my mind no distinct meaning. I do understand, however, that the patentees proposed to make use of the means for raising and lowering the stretcher bar, whether but one or two brushes are used, but I also understand that in case one brush is used, it is the brush at $D^1$, that it must have the functions of the brush at $D^1$, and that the stretcher bar must, in such case, as called for in the specification, move "*under*" the brushing roll $D^1$, and this requires the presence and operation of the cam Y to be the same if one brush is used as if two brushes are used. In defendant's machine, the stretcher bar does not move *under* the brush $D^1$, but only moves to and from the same in the same manner as in the Lake machine it is moved to and from the brush D, except that a rising motion is given to the stretcher bar at the side of the single brush in defendant's machine.

X Q. 182. The rising motion of the stretcher bar at the side of the single brush in defendant's machine is produced by the cam
148 Y set on the shaft G and by the lever $X^2$ and the eccentric in the frame A, is it not?

A. It is produced by these parts, but timed differently and arranged differently from the timing and arrangement of the Lake patent, as I have before pointed out.

X Q. 183. By these different timings and different arrangement of these parts in defendant's machine, you understand that the crank of defendant's machine is shorter and that the cam Y is set on the shaft G some degrees farther to the right, do you not?

A. I understand this, and also that the brushing roll is set further down. And I understand that by these different timings and different arrangements the function and operation of the roll at $D^1$, that is the single roll used by defendant, are radically changed.

X Q. 184. To sum up then, your understanding of the Lake English patent is such that in a machine wherein only one brush is used the timing and the setting of the remaining parts of the machine should be the same as in a two brush machine, and that because in defendant's machine the timing and the setting of the parts are so modified as to make the single brush $D^1$ to perform also the function of the brush D in a two brush machine, in addition to the function of the brush $D^1$, as it is done in defendant's machine, these defendant's machines are not such machines as shown and described in the Lake English patent?

A. My understanding of the Lake patent is that, so far as it gives any information to the public as to proposed changes, it makes no further statement than that one of the brushes shall be dispensed with, and this shall be the brush at D. It does not state that the timing is then to be changed, or that the brush at $D^1$ is to operate any differently from what it does when two brushes are used nor that its position or character is to be altered in any way, and I have therefore pointed out that in defendant's machine, where there are all these departures from the description of the Lake machine, except that one brush is removed, these departures have no warrant in the Lake patent. In this part of my testimony, I did not consider what changes might be made by those skilled in the art, for my object was to point out the difference between what was described in the Lake patent and what I found in defendant's machine. I may remark that I do not know of anything in the prior art which would constitute a guide to any one building the Lake machine with a single brushing roll because, except the operations performed by hand and those in which the hair was removed by pulling out or cutting it off close to the surface of the fur, there practically was not any prior art.

149 X Q. 185. In the case of the same complainant against William A. Hulbert and another, wherein you testified on behalf of complainant, you have testified that you have read the testimony of defendant's witnesses, have you not?

A. I made that statement in answer to one of the questions in that case as regarding the preceding testimony.

X Q. 186. I call your attention to Q. 6 and answer thereto in the

deposition of John B. Eliot, referring to the drawings of the Lake patent and reading as follows:

"Q. 6. Have you seen the actual machine which is represented in these drawings and for which Mr. Lambert requested you to solicit a patent?

"A. I have.

"Q. 7. Please state when and where you saw the machine represented in the drawings of the British Lake patent?

"A. The first time I saw a similar machine was I think in 1880 somewhere on Prince street, as I remember in practical operation, and then I have seen one recently in a shop on Center street, I don't remember the number, one that was made in all respects like the machine represented in the drawings of the Lake patent."

In your testimony you have on different occasions stated as for instance in answer to Q. 10 to X Q. 137 and elsewhere that it is your opinion or conclusion that the drawings and descriptions of the Lake English patent were not based upon a machine which had been practically operative but were theoretical. I now call your attention to the quoted testimony of Mr. Eliot, the solicitor who procured both the U. S. and foreign patents for the machine set forth in the Lake English patent and ask you to state, whether in giving your testimony wherein you express the opinion or conclusion that the drawings and specifications thereof were not based upon a machine which had been practically operative, you have taken into consideration this testimony of Mr. Eliot in the other case wherein you also testified?

Complainant's counsel instructs the witness not to answer and for the following reasons:

First. Defendant's counsel under cover of a question is endeavoring to inject into this case statements or insinuations of facts not testified to and not properly proven.

There is no evidence in this case that John B. Eliot testified as the question insinuates, even if he did so testify and his testi-
150 mony might be material, it cannot be proven by way of a question put by defendant's counsel.

Second. This method of injecting the alleged depositions of other witnesses in other cases and then only parts of such depositions is manifestly unfair and contrary to the rules of evidence;

Third. Defendants have closed their proof and even if the deposition of Mr. Eliot would be offered in evidence properly proven, defendants have no right to offer it.

Defendant's counsel states that the object of the question, wherein the testimony of the witness Eliot is quoted, is merely and solely for the purpose of refreshing the memory of the witness, Foster, as to matters within his knowledge, and further for the purpose of ascertaining whether this witness, Foster, in giving his testimony recited in the question, did take in consideration the facts which were, as shown by his testimony, within his knowledge when he so

testified, though of course when he so testified he might have omitted to take these facts into consideration. Upon these statements, defendant's counsel requests the witness to answer.

A. Under instructions, I must decline to answer.

X Q. 187. In your testimony, answer to Q. 10, you say "the card clothing as then well known consisted of fine bent wires projecting at an angle to or from a backing of flexible material, generally leather, and acting in the same manner as teazles in operating upon cloth." Is it your understanding that the term "card clothing" was at the time of the Lake English patent limited to the particular material used in napping machines?

A. The term usually employed to indicate the character of roller surface intended to penetrate a body of fibres and draw them out was "card." The term "teazle," however, was used, and sometimes "picker." The machines in which this operation took place were called "teazling machines" and "napping machines," and sometimes "finishing machines," the latter term, however, being employed generally, not to indicate the action of the teazling or napping rolls, but of the brushing rolls which gave the final operation in machines where both napping and finishing or brushing were combined. These were the operations in machines with which I was practically familiar before the year 1881, having seen the same and studied their operations.

151 X Q. 188. You seem to misunderstand my question. I ask you whether it is your understanding that the term "card-clothing" was at the time of the Lake English patent to wit, on or about the 28th day of June 1881, limited to the particular material designated by that term and used in napping or cloth finishing machines?

A. No. The term "card clothing" was used in connection with the clothing of rollers used in carding engines, where fleeces generally of cotton were formed upon the surfaces of large drums covered with metallic cards, these fleeces being lifted off by vibrating blades called "doctors" and then drawn through rotating tubes to form light thick ropes or slivers afterwards twisted or spun into cords or threads.

X Q. 189. Are you aware, or do you have any knowledge whether or not the term "card clothing" was at the time of the Lake English patent and prior thereto employed also to designate the material of which brushes were made. By brushes I mean to designate the implement used for brushing scrubbing and finishing of different materials.

A. I do not know of any instance where that term has been so used. Such use would, in my opinion, be extremely improper because the term "card," as used in connection with machines for operating on fabrics, properly applies only to something which is the equivalent of a teazle and constructed to act like a teazle. Of course, I am familiar with the use of the term "card" as an equiv-

alent for a comb as used in such machines as heckling machines, but I do not recall any instance in a machine for finishing fabrics where before 1881, this term was used or could be properly used to designate what is simply a brush. If it ever was so used, I have no knowledge of it.

X Q. 190. What do you understand by the term "metallic brush"?

A. Generally speaking, a brush having metallic teeth secured to a suitable backing.

X Q. 191. Such metallic brushes, I mean brushes having metallic teeth, are made of fine wires set in backing of flexible material and these metallic wires are not bent in the manner as you describe the material that you understand to be properly designated card clothing. Is my explanation of the metallic brushes correct?

A. Not exactly. I do not recall any metallic brushes in which the teeth are not made of bent wires. These wires are first bent to a U-shape, so that the two prongs will penetrate the backing
152 fabric. In some instances, they stick out of the fabric at right angles to the surface when it is flat. In other instances, they are bent close to the surface of the fabric so as to occupy a slight angular position. These however are distinguished from the bent teeth of a card because first, of their much greater flexibility in proportion to their length, and secondly, because they are not so bent generally about midway between the surface of the fabric and their ends, as to act with a picking effect.

X Q. 192. Such metallic brushes with straight teeth were well known in the art or prior to the date of the English Lake patent, were they not?

A. They were well known in different arts prior to said date. I may add that in referring to a roller having metallic teeth more stress was placed upon the function than upon construction. For instance, where brushing rolls were referred to, while it was recognized that the teeth must be long and flexible, the idea embodied was that of contacting with and pressing down the fibers upon or along the surface of the fabric, while when napping or teazling rolls were referred to, the idea prominent in the mind was of teeth that would penetrate and draw out the fibers carrying them away from the normal surface of the fabric upward and not down upon or along the same.

X Q. 193. Such metallic brushes were designated in the arts also by the term "cards" in contradistinction to brushes made up of animal bristles, were they not?

A. I cannot answer that in the affirmative, because while I have no particular instance in mind, I am very confident that I could produce reference to patents or description where very short stiff bristles acting with a carding effect have been termed "cards." It is possible that where the metallic teeth have been very short and stiff they may have been also termed "cards," but in such case I would not term them brushes, and I do not recall any instance

where such structures have been so termed. I would not call them brushes.

X Q. 194. Brushes are sometimes used for combing, are they not?

A. As a general thing there is a distinction made between brushing and combing, but a very stiff brush might approximately effect the operations of a comb.

X Q. 195. You stated in your testimony in answer to Q. 10 that the devices designated in the drawings of the Lake English patent D and D¹ respectively are termed in the description—"fur opening brushes" or "separating brushes" or "brushes" or
153 "brushing rolls." Please state whether in your understanding such designation of these devices in the specification of the Lake English patent does or does not signify that the inventor of the machine of the Lake English patent intended these devices to operate as brushes operate and not in such manner as you assume in your testimony as what is designated as "cards" in a napping or cloth finishing machine?

A. Such use of the terms as I find in the Lake patent conveys to me the purpose of the patentees to make use of a roll which would produce the same effect, whatever the character of the clothing might be, as is embraced by the different terms specified. In other words I do not understand that the specification of the Lake patent sets forth the purpose of the patentees to use a roll that will have either a brushing effect or one that will have a combing effect. The terms seem to be used synonymously to indicate the same action. For instance, on page 1, line 19, reference is made to "a brushing or combing agent." If the description went no further, I might thus understand that the patentees had in view either a brushing or combing effect, but the purpose of this agent is immediately set forth to be "for drawing the fur away from the hair." This describes not a brushing effect but a combing or drawing or teazling effect. Further, where reference is made to the fact that the brushing rolls "are covered with card clothing, bristles or teazles" it is not stated that these different coverings may be used for producing different effects, but all are referred to as used "to draw the fur on the skin over the edge of the bar B and away from the compression plate," which describes the result that would ensure from the use of teazles catching the mass of fur at the edge of the plate and drawing the same away to one side, and this could not properly be termed a brushing effect. In other words, as only one effect is set forth to be obtained by the action of the roll, I understand that whatever may be the covering of this roll the patentees had in view only this single effect, and not the use of a brushing roll sometimes to produce a brushing effect, and a carding roll at other times to produce a carding effect.

X Q. 196. When you use a hair brush, you not only brush down the hair but you also draw it in such position as you desire to have it brushed, do you not?

A. Yes, by imparting to the brush a line of movement corresponding to the direction in which it is desired to lay the hair.

X Q. 197. But the bristles or prongs of the hair brush draw the hair in the direction in which you move the brush, do they not?

A. They do.

154 X Q. 198. Considering this, is it not clear that the words "to draw the fur away from the compression plate and over the edge of the stretcher bar, as used in the specification in the Lake English patent, to describe the same action of the brushes or brushing rolls D and D¹ as you accomplish by the use of a hair brush in dressing your hair?

A. Following your analogy, I would state that if I used a very stiff brush the bristles of which would pass into the mass of the hair, and draw the said brush over the top of my head and away from the rear thereof, I would draw out the hair upon my head so as to cause it to project forward from my forehead, and in this case would accomplish the same kind of action which I understand is described in the Lake specification in connection with what is termed the brushes or brushing rolls. In this case, of necessity, the teeth of the brush must penetrate the hair in order to catch and draw it away and to this extent the action is a combing action and not a brushing action, for a true brushing action, as is universally recognized, is simply to smooth and lay down the hair and compact it rather than to separate and draw out the hairs.

X Q. 199. A brush having bristles so soft or so flexible that they would not penetrate your hair would not accomplish such action as you describe in your previous answer, would it?

A. It would not. The term drawing action could not properly be applied to such a brush.

X Q. 200. Does it not appear to you then that in a machine like the machine of the English patent to Lake, there must also be employed brushes the teeth whereof are capable of penetrating the fur to accomplish the action described therein, namely to draw the fur over the edge of the stretcher bar and away from the compression plate and also away from the stiff or coarse water hairs?

A. That I understand to be what is set forth in the Lake patent, and I do not call this properly a brushing effect but rather a teazling or carding effect.

X Q. 201. In defendants' machine, the metallic bristle brush also acts to draw away the fur over the edge of the stretcher bar and away from the compression plate by reason of its bristles or prongs penetrating the mass of the fur in order to catch and draw it away, does it not?

A. I would not so describe it. As the stretcher bar moves upward after presenting the skin on the edge of the bar to the roll, the latter wipes the fur to one side and to a certain extent this
155 might be said to correspond to drawing it away from the edge, although there is not that penetrating action which results from the use of a teazle nor the outdrawing action which follows. But in addition to thus wiping the fur away to one side, the upward movement of the stretcher bar causes the fur to be wiped

down or brushed down against the side of the stretcher bar, so that I would not call the total action, even assuming that there was any drawing away of the fur at the beginning, as one drawing away the fur over the edge of the stretcher bar and away from the compression plate, because it is practically a brushing down of the fur against the side of the stretcher bar.

X Q. 202. Do you believe that a brush having bristles or prongs so stiff as necessary to exert a combing action as you described it, can also at the same time have what you describe as a wiping action?

A. It might under certain conditions, but I do not wish to be understood that I am of opinion that with bristles or teeth so stiff as to have a combing and drawing action the result would be to properly separate the fur and the water hairs, because, with a roll of this character, the water hairs themselves would be bent and broken so as not to recover their upright positions to permit of removal by the cutters. Of course these conditions would imply the downward movement of the brush in respect to the stretcher bar or the upward movement of that in respect to the brush.

X Q. 203. Complainant's witness Mischke testified in answer to Q. 87 and 88 that in defendant's machine the wire bristles brush down both the fur and hair and that thereafter the hair rises. This would indicate that the metallic teeth of the brush in defendant's machine do not have such action upon the water hairs as you assumed in your preceding answer, though they have the drawing and combing action necessary to draw the fur over the edge of the stretcher bar and away from the compression plate?

A. They do not have such action upon the water hairs because the wires of the brush in defendant's machine are thin and extremely flexible and do not have a penetrating and drawing action but wipe or brush the fur to one side without injury to the water hairs, and the flexibility of the wires in connection with the upward movement of the stretcher bar cause the fur to be wiped downward on the side of the stretcher bar.

X Q. 204. In what respect is the action of the metallic bristles or prongs of the brush in defendant's machine different from
156 the action of the brush G described in the prior patent to Covert, Defendant's Exhibit Covert Patent. I call your attention to the statement on line 93, page 1, of the specification, reading as follows:

"Every time the brush G passes over the fur at the edge of the blade E it draws over with it as much fur, together with the accompanying hairs, as have been released from the blade C during one revolution. As the brush leaves the fur, the hairs, by reason of their stiffness and elasticity spring up against the cutting blade C."

A. I regard the action of the brush G in the Covert patent as the same as the action of the brush $D^1$ in the Lake patent. In fact, I find that they are both described in nearly the same terms, the Covert patent stating, line 82 & 83, that "*t* represents a layer of fur as it lies when brushed over." As shown in Fig. 3, the fur is rep-

resented as standing out nearly at right angles from the line of the skin in just the position in which I understand the fur would lie as described by the words "draw the fur on the skin over the edge of the bar B and away from the compression plate, lines 48 and 49 page 2 of the Lake patent. I have before pointed out that this differs from the action of the brush in the defendant's machines where the fur is carried down at the side of the stretcher bar.

Adjourned to 10 a. m. Mar. 27, 1902.

WASHINGTON, D. C., *March* 27, 1902.

Met pursuant to adjournment.
Parties present as before.

Cross examination of Mr. FOSTER continued:

X Q. 205. This brushing down or carrying down of the fur to the side of the stretcher bar in defendant's machine results from the rising motion of the stretcher bar occurring while the pelt is in contact with the brush, does it not?

A. It results in defendant's machine from the action as described in your question, where the brush has thin flexible wires which act with a wiping effect, co-operating with the upward movement of the stretcher bar to wipe down the fur.

X Q. 206. Assuming that the stretcher bar of the machine of the Covert patent be movable and be moved upwardly while the brush G acts upon the pelt in a motion similar to the motion of the stretcher bar in defendant's machine, kindly say whether the fur indicated by letter *t* in Fig. 3 of the Covert patent would not
157 be brushed over to the off side of the stretcher bar in the same manner as it is brushed over in defendant's machine?

A. I think that that might result if the Covert machine was so altered, but of course there would have to be other alterations and this would practically convert the Covert machine into defendant's machine, so far as the brush operations are concerned.

X Q. 207. Such cylindrical brushes as used in defendant's machine were well known in the art at the time of the Lake English patent, were they not?

A. Such cylindrical brushes were well known in the arts.

X Q. 208. And such cylindrical brushes were made both of bristles or of metallic wires, were they not?

A. Cylindrical brushes were made both of bristles and of metallic wires. In bristle brushes the bristles were generally if not always inserted in bundles and did not stand out separately as in metallic brushes.

X Q. 209. The metallic wires or bristles of such brushes were, as a rule, set in a backing or pad of some flexible material of the same character as the metallic wires or bristles of the brushes in defendant's machine are set in, were they not?

A. They were set in a backing of flexible material. I do not now recall what kind of material was first used for this purpose, but it was flexible.

X Q. 210. If the size of the cam in the machine of the Lake English patent be increased then the rising and lowering motion of the stretcher bar would also be increased, would it not?

A. If the increase was regular throughout, yes.

X Q. 211. The same would the raising and lowering motion of the stretcher bar be increased if the eccentric on the shaft $C^1$ be enlarged, would it not?

A. It would.

X Q. 212. Does the machine of the Lake English patent contain the combination of (1) a stretcher bar; (2) means for intermittently feeding a pelt over the stretcher bar; (3) a guard device on one side of the stretcher bar; (4) a rotary separating brush on the other side of the stretcher bar; and (5) mechanism for causing the rotary separating brush to brush the fur downward from the working edge of the stretcher bar onto the off side thereof, that is, onto the side towards which the pelt is fed?

A. I do not consider that the Lake patent sets forth any combination that will produce the results described in your question. My reasons for this opinion have already been given very fully.

X Q. 213. I am not aware that I have in my question stated any results to be obtained by the combination. I therefore re-
158 quest the question to be repeated, and ask you to answer the same without any reference to your opinion as to the result of the combination or the capability of the parts of the machine of the Lake English patent to perform or attain the results that you might think such combination should or ought to perform. In answering this question, kindly confine yourself to stating whether or not in the machine of the Lake English patent, the elements enumerated in my question are contained?

A. Your X Q. 212 specifies four elements and a function or result which is put in the form of a fifth element. This element is not specified any other way than as mechanism for effecting a certain result, and therefore the answer which I gave is the best that I can give.

X Q. 214. Does the machine of the Lake English patent contain a stretcher bar?

A. It contains all the elements directly mentioned in your X Q. 212, and it contains mechanism, but not mechanism which operates as described in that question.

X Q. 215. What mechanism do you mean to designate in your answer as being contained in the Lake English patent?

A. In addition to (1) a stretcher bar; (2) feeding means; (3) guard; (4) brush; there is (5) mechanism which carries the stretcher bar and imparts certain movements thereto. They are not movements which effect the result of your question, X Q. 212.

X Q. 216. Then if I understand you correctly, you intended to desig-

nate by the word "mechanism" in your answer to X Q. 214, the mechanism which reciprocates the stretcher bar, do you not?

A. I refer generally to the mechanism which imparts movements to the stretcher bar. In referring to these elements, as I have done, my reference of course must be taken with all the qualifications I have before expressed, as for instance what is meant by the term "brush."

X Q. 217. This mechanism is the mechanism that brings the stretcher bar in the position relatively to the brush D shown in Fig. 1 of the Lake English patent, is it not?

A. The mechanism I referred to is the mechanism which among other things brings the stretcher bar to the brush D as shown in Fig. 1 of the Lake drawing.

X Q. 218. This brush D is referred to in the specification of the Lake English patent more particularly in the description of Fig. 1 as a separating brush, is it not?

A. It is so designated at that point.

159 X Q. 219. And it is also therein stated that in this position of the parts shown in Fig. 1 the fur is under the action of the separating brush, is it not?

A. It is so stated. I would call attention, however, to the fact that both the brushes receive the same designation on line 19, being termed "the fur opening brushes at D and $D^1$."

X Q. 220. In the position of the parts shown in Fig. 1 the brush D acts on the off-side of the stretcher-bar, does it not?

A. The brush would act on that side of the stretcher bar. I do not wish to be understood as defining what kind of an action by this answer.

X Q. 221. The brush D of the machine of the Lake English patent rotates in the direction of the arrow indicated thereon in Fig. 1, does it not?

A. I so understand.

X Q. 222. I have observed that in your testimony you have repeatedly referred to the parts designated D and $D^1$ in the Lake English patent as "rollers." In the specification of the patent, these parts are referred to as brushes or brushing rolls. Kindly state whether in referring to these parts as rollers you had any particular object in view or whether it was merely a slip of tongue?

A. It was merely a slip of tongue, the term being a common one to designate what is the same thing. If I had thought about the matter at all, I should have adhered to the term roll or rolls.

X Q. 223. You stated at the outset of your testimony in answer to Q. 10 that these parts D and $D^1$ are termed in the specification as "fur opening brushes" or "separating brushes" or "brushes" or "brushing rolls," and I therefore in view of your explanation in answer to X Q. 222 assume that whenever you referred to these parts as rollers, you meant to use either of these terms "fur-opening brushes" or "separating brushes" or "brushes" or "brushing rolls" as you stated are used for the designation of these parts in the speci-

fication of the Lake English patent. Is my understanding of your explanation correct?

A. I meant to designate the same part as if I had used any one of the terms you specify. I did not however intend to use those terms because I used the term "rollers" not inappropriately because it is not unusual to so designate the revolving parts in cloth finishing machines as rollers.

Examination closed.

CHARLES ELWOOD FOSTER.

160 Sworn to before me and subscribed this twenty-seventh day of March, 1902.

HENRY D. OLIPHANT, *Examiner.*

IRVING U. TOWNSEND, a witness called on behalf of complainant, in answer to questions put to him by Mr. Raegener, testifies as follows:

Q. 1. What is your name, age, residence and occupation?

A. Irving U. Townsend; age, 35; residence, 1221 Kenesaw avenue, Washington, D. C.; occupation, examiner of textiles in the U. S. Patent Office.

Q. 2. Since when have you been an employé of the U. S. Patent Office?

A. Since 1886. I have been an examiner since the fall of 1893.

Q. 3. Are you familiar with the operation of teazling and brushing and with the construction of teazles and brushes and with the effects of the same upon fabrics?

A. I am.

Q. 4. Please describe the difference of effect between a teazle, brush and a card as these terms were recognized in the art prior to June 1881?

A. The action of a teazle was to engage the threads constituting the foundation or body of a fabric and to draw fibers therefrom and raise them so that thereafter they will project from the foundation or body and form a nap. The effect of a card is the same as that of a teazle; the effect of a brush was to smooth or lay the nap previously raised by a napping device or to smooth the pile of a pile fabric or to remove specks or motes from the surface of a fabric; in such case it might be either the face of a fabric or the back of a fabric. A brush also acted generally to smooth the fabric or to polish the threads of the fabric, but not to draw out fibers from the thread into a nap.

Q. 5. What prior to June 1881, was the character of brushes used as equivalents of teazles or cards?

A. I do not recognize that prior to the date mentioned a brush proper was used or could be used as a teazle or card. If what was designated as a brush was intended to act as a teazle or card, it was

necessary that the bristles or wires of which the brush was made should be so short and stiff as that the device was in reality a card, although possibly termed a brush.

161 Cross-examination by Mr. SCHREITER:

X Q. 6. Have you ever in your practical experience observed the action of a rotary cylindrical brush or brushing roll in an unhairing machine?

A. I have not.

X Q. 7. Have you ever in your practical experience observed the action of a brushing roll covered with card clothing or teazles upon the fur and hair of a fur skin in an unhairing machine?

A. I have not.

Oath and signature waived.

Adjourned until Monday, March 31, 1902, at the office of complainants' counsel in the city of New York.

NEW YORK, *March* 31, 1902.

Met pursuant to adjournment.

Present: Henry Schreiter, Esq., of counsel for defendants, and Louis C. Raegener, Esq., of counsel for complainants.

DANIEL MCLEAN SHAW, a witness called on behalf of complainants, having first been duly sworn, in answer to questions put to him by Mr. Raegener, testifies as follows:

Q. 1. What is your name, age, residence and occupation?

A. Daniel McLean Shaw; age, sixty-one; residence, 144 W. 86th St., New York city; occupation, lawyer. I am a member of the firm of Shaw, Fisk & Shaw, 99 Nassau St., New York city.

Q. 2. How long have you been a practicing lawyer?

A. Thirty-nine years.

Q. 3. During all this time have you had your offices in the city of New York, in the borough of Manhattan?

A. Yes, always.

Q. 4. Please look at "Complainants' Exhibit File-wrapper and Contents of the Abandoned Application of Francois Lambert and Joseph Kokesch," sworn to June 7, 1881, and state whether you are the Daniel M. Shaw mentioned in said application?

A. I am.

Q. 5. Did you know Francois Lambert?

A. Yes, I knew Frank Lambert.

Q. 6. In the year 1881 were you interested with the said Lambert in exploiting an invention for unhairing seal skins?

A. Yes.

Q. 7. Do you know Ludwig Brunswig?

A. Yes.

162 Q. 8. In 1881 was he a client of yours?
A. He was.
Q. 9. Did the said Ludwig Brunswig conduct a drug store on the corner of 13th St. and 3rd Ave. in 1881?
A. Yes.
Q. 10. Did the said Brunswig also contribute money in exploiting the said invention?
A. He did.
Q. 11. About how much money did you contribute in exploiting the said invention?
A. $1200 or $1500.
Q. 12. About how much money did Brunswig contribute?
A. $800 or $1000.
Q. 13. Did Mr. Lambert build a machine for unhairing seal skins?
A. Yes.
Q. 14. In what year?
A. 1881.
Q. 15. Did you and Mr. Lambert and Mr. Brunswig employ Mr. Boyd Elliot, of the city of New York, as the attorney for filing the application for the United States letters patent shown you and referred to in Q. 4?
A. Yes.
Q. 16. Did you likewise employ the said Boyd Elliot to make application for British and French letters patent?
A. I believe we did.
Q. 17. You will observe that the final fee, to wit, the sum of $20, was not paid to the United States Government for this application. Will you please state why it was not paid?
A. Because I abandoned it.
Q. 18. Did you abandon the invention?
A. I did.
Q. 19. Why did you abandon the invention?
A. I did not think it worked satisfactorily.
Q. 20. Where was the machine when you last saw it?
A. In Prince St., city.
Q. 21. Did you with the money put into this invention buy a steam engine to operate the unhairing machine?
A. We did.
Q. 22. Do you know whether Mr. Brunswig likewise abandoned the invention?
A. I know that he did, yes.
Q. 23. Did he get out before you did?
A. Before I did.
Q. 24. You had charge of the moneys for the joint account, did you not?
A. Yes.
Q. 25. What became of the steam engine that you originally purchased?

A. After we abandoned the patent it was stored a year or two and finally I sold it.

Q. 26. What did you get for it?

A. $100.

Q. 27. What did you do with the $100?

A. I kept it.

Q. 28. You were aware in 1881, at the time that you invested your money in this enterprise, that the Cimiottis were engaged in the business of unhairing?

163 A. I knew that as a general fact, yes. Mr. Lambert told me.

Cross-examination by Mr. SCHREITER:

X Q. 29. Who built the machine in which you were interested jointly with Mr. Brunswig and Mr. Lambert?

A. Garvin, or the Garvin Machine Co.?

X Q. 30. Who made the drawings for the building of this machine by the Garvin Machine Co.?

A. I believe Mr. Lambert did.

X Q. 31. Mr. Lambert was an expert mechanical draughtsman, was he not?

A. Yes, he was as far as I know.

X Q. 32. Please look at the drawings and tell whether or not you recognize from these drawings that they represent the machine that was built by the Garvin Machine Co. as you testified.

A. I cannot recognize that. If you put together the machine I think I could recognize it. I did not pass upon the drawings at all at that time. I trusted all that to Mr. Lambert.

X Q. 33. Prior to the machine built for you and Mr. Lambert by the Garvin Machine Co. Mr. Lambert built another unhairing machine, did he not?

A. He had another machine there which, I believe, he constructed or attempted to construct.

X Q. 34. Mr. Elliot testified in another case that the machine for which he solicited patents was exhibited to him by Mr. Lambert in 1880 and that he saw it in practical operation unhairing different kinds of skins. Do you have any knowledge of that machine?

Complainants' counsel objects to this method of injecting testimony in this record. Mr. Elliot has not testified in this case, is not a witness and cannot be a witness, because defendants have taken no testimony. If the examining counsel desires to inquire whether this witness saw or did not see a certain machine at a certain time and at a certain place, he can do so without injecting into this case alleged testimony by another witness in another case. The question is objected to as containing heresay statements.

A. I have no knowledge of it otherwise than, as I have stated, that there was another machine. I know there was an old wooden

machine which Mr. Lambert said was no good. He got money from me to construct another, saying he had found the principles, he thought, and he could build one now which would outreach the Cimiottis'.

164 X Q. 35. This Lambert machine was an automatic machine, was it not?

A. Yes.

X Q. 36. What skins were to be unhaired on the Lambert machine?

A. Sealskins.

X Q. 37. Can you state in what respects the machine built for you and Mr. Lambert by the Garvin Machine Co. was different from the machine shown in the drawings of the application for the United States letters patent?

A. I can not.

X Q. 38. What was the trouble with the machine or with the business that induced you to abandon the invention?

A. The machine was not accurate enough. It would cut the stiff hairs and the next minute it would cut a hole in the skin. I saw one skin that I paid $60 for ruined in one second.

X Q. 39. You had no interest in the first Lambert machine?

A. I do not think I had. I may have lent him some money before that time, but I do not think I had any interest in that crude machine which he had there. I have no recollection at the present time that I did.

X Q. 40. By the expression "crude machine" do you mean to indicate that it was crudely constructed?

A. Yes.

X Q. 41. That machine had a wooden frame, had it not?

A. Yes.

X Q. 42. The second machine that was constructed by the Garvin Machine Co. had an iron frame and all its parts were workmanlike constructed and assembled, were they not?

A. They seemed to be.

X Q. 43. It had the appearance of a workmanlike machine?

A. It certainly did.

X Q. 44. You had no experience in or knowledge of the fur unhairing business at that time, had you?

A. I had no knowledge of it or no experience.

X Q. 45. On what was the money expended that you and Mr. Brunswig contributed for the exploitation of the invention?

A. Well, for construction of the machine, for the purchase of an engine and boiler and belting, for rent, for wages of Mr. Lambert, necessary running expenses and paying for the patent.

X Q. 46. Was the application for the patent made before or after the machine built by the Garvin Machine Co. was completed?

A. I cannot state with certainty, but my impression is that the machine was built at the time we made the application. I may be mistaken.

165 X Q. 47. Did you test or operate the machine before the applications for the patents were made?

A. I do not remember.

X Q. 48. Can you say upon your oath whether the machine that was built for you and Mr. Brunswig and Mr. Lambert by the Garvin Machine Co., and in which you say you were interested, was an unhairing machine of the same construction as the machine shown and described in the Exhibit "Abandoned Application"?

A. I believe it was.

X Q. 49. Do you mean to be understood that the machine was constructed in all parts in the same manner as shown and described in the Exhibit "Abandoned Application"?

A. Yes. I do not think there was any change in the plans after we made the application.

X Q. 50. Then I understand you to say that the applications for the patents were prepared from the machine which was built for you by the Garvin Machine Co. and not from the first machine that Mr. Lambert had before you became interested?

A. All I can say as to that is that Mr. Lambert told me that other machine was no good and wouldn't work, and he got up this plan and machine and from those plans we made up the patent.

X Q. 51. And the effect of that machine was, as I understood you to say, that sometimes the cutters cut a hole in the skin?

A. Yes, that was the objection—one objection to me.

X Q. 52. Seal skins cost about $60 apiece at that time?

A. I remember I paid $60 for one.

Re-direct examination:

R. D. Q. 53. Is Francois Lambert or Frank Lambert still alive?

A. Yes.

R. D. Q. 54. Do you know where he lives?

A. In Brooklyn.

R. D. Q. 55. Is Ludwig Brunswig still alive?

A. Yes.

R. D. Q. 56. Where does he live?

A. He lives in Jersey City.

Signature waived.

Complainants' counsel offers in evidence U. S. letters patent to Davies & Lambert, No. 200,518, of Feb. 19, 1878; also patent to F. Lambert, No. 217,291, of July 8, 1879; patent to Castle, No. 213,736, of April 1, 1879; and likewise a certified copy of Judge Thomas' decision in the case of Cimiotti *vs.* Nearseal, filed in the southern district of New York July 18, 1901, and the same is marked "Judge Thomas' opinion."

166 Defendants' counsel objects to the introduction in evidence of the Exhibits Davies & Lambert patent and F. Lambert patent, neither of which has any bearing whatever on the matters

in controversy here and neither of which is at all referred to in any evidence heretofore given or introduced in this case. Defendants' counsel also objects to the introduction in evidence of certified copy of Judge Thomas' decision, on the ground that the same is not a final adjudication of any matters relating to the controversy involved in the case at bar, and upon the further ground that the decision is now under consideration of the court of appeals and is therefore unavailable for any purpose either as precedent or authority.

Defendants' counsel gives notice that he shall move that all these exhibits be stricken from the record, on the ground that they are improper as rebuttal testimony, irrelevant to the issues and utterly immaterial to any consideration in the case.

Complainants' counsel at the same time gives notice that should defendants' counsel make a motion to strike out any of the testimony in this case he shall at the same time move the court to strike out the question put to the witness Foster in which certain alleged testimony of Mr. Elliot supposed to have been given in another case is introduced, and likewise a similar question referring to Mr. Elliot's testimony in another case put to the witness Shaw.

Complainants rest. Testimony closed.

167

# United States Patent Office.

JOHN W. SUTTON, of New York, N. Y.

## *Machine for Plucking Furs.*

Specification forming part of Letters Patent No. 383,258, dated May 22, 1888. Application filed May 13, 1887. Renewed March 2, 1888. Serial No. 266,007. (No model.)

To all whom it may concern:

Be it known that I, John W. Sutton, of the city, county, and State of New York, have invented certain new and useful improvements in machines for plucking furs, of which the following is a specification.

This invention relates to an improved machine for plucking seal-skins and other furs, so as to remove the stiff water-hair therefrom without injuring the soft hair or wool of the same.

The machine is more especially designed with a view to overcome some of the defects and insufficiencies of the plucking-machines heretofore in use, and produce the plucking of the skins at the lower parts of the neck and shoulders, where the hairs point outwardly and backwardly and are the most difficult to pluck, as they lie down close to the skin when the same is drawn over the stretcher-bar.

My invention is further designed to dispense with a blast-fan or other air-forcing devices, and produce the removing of the water-hairs entirely by mechanical means, which are operated by power, so that a quick and uniform plucking of the skin takes place.

The invention consists of a machine for plucking seal and other skins, which comprises a fixed stretcher-bar, means for stretching and intermittently feeding the skin over said stretcher-bar, a fixed card above the stretcher-bar near the edge of the same, a rotary separating-brush that is intermittently moved up in front of the stretcher-bar, an oscillating guard below the stretcher-bar, a rotary cutting-knife and a vertically-reciprocating cutting-knife working in conjunction with the rotary knife for cutting off the stiff projecting hairs, said rotary cutting-knife being provided with a card supported back of the knife, all of which parts are operated from a common driving-shaft, so as to produce for each rotation of the same the cutting off or plucking of the hairs projecting from that part of the skin in front of the stretcher-bar.

The invention consists, further, of the combination, with the elements described, of laterally reciprocating rubbers which are guided on an oscillating supporting-bar, said rubbers being quickly moved inward over the skin in front of the stretcher-bar and then lifted and returned to their normal position, so as to raise the hairs that

lie down close to the skin and present them for the cutting action of the knives.

The invention consists, further, of the mechanisms by which the motion is imparted from the driving-shaft to the different parts comprising the machine, as will appear more fully hereinafter, and finally be pointed out in the claims.

In the accompanying drawings,

(Here follow diagrams marked pp. 167 *a*, *b*, & *c*.)

Figure 1 represents a vertical longitudinal section of my improved machine for plucking sealskins and other furs, the machine being shown in the act of cutting the stiff hairs projecting in front of the stretcher-bar. Figs. 2 and 3 are vertical longitudinal sections of the operative parts of the machine, drawn on a larger scale, and showing them respectively in the act of running over the edge of the skin and brushing the stiff hairs forward, said figures representing different stages in the treatment of the skin preparatory to the cutting off of the hairs. Fig. 4 is a plan of my improved machine. Figs. 5 and 6 are detail front views of the devices for rubbing over the edge of the skin, the figures showing the rubbers respectively in position before and during the rubbing action. Fig. 7 is a side elevation of the machine, with a part of the supporting-frame broken away; and Figs. 8, 9, and 10 are details of the different cams by which motion is imparted to the working parts of the machine.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the supporting-frame of my improved machine for plucking seal and other skins. On the frame A is supported a fixed transverse stretcher-bar, B, which is tapered to a narrow edge, over which the skin to be plucked is stretched. The skin is applied by tapes to the rollers B′ B′, which are intermittently actuated by gear-wheels operated by a pawl-and-ratchet-wheel mechanism from the driving-shaft S, as customary in plucking-machines of this class. By the gear-wheels and the pawl-and-ratchet mechanism the skin is fed intermittently for a small portion of its length over the front edge of the stretcher-bar, it being unwound from the upper and wound up on the lower feed-roller.

167¼ Below the edge of the stretcher-bar is arranged a vertically-reciprocating knife C, which moves in slots or ways of fixed guide-plates C′, and which is operated by fulcrumed levers $C^2$, the rear ends of which are engaged by cams $C^3$ on a cam-shaft, S′, that is supported above the driving-shaft S in suitable bearings of the frame A, as shown in Figs. 1 and 10.

In front of and at some distance from the stretcher-bar B is supported a shaft, D′, in bearings of the frame A, said shaft being provided with radial arms *d d*, to which the rotary knife D is attached, which, in conjunction with the vertically-reciprocating knife C, serves to cut off the water-hairs projecting from that part of the skin in front of the edge of the stretcher-bar B. To the arms of the ro-

No. 192
Cimotte Co
American Co } p. 167 a

(No Model.) 3 Sheets—Sheet 1.

J. W. SUTTON.

MACHINE FOR PLUCKING FURS.

No. 383,258. Patented May 22, 1888.

Fig: 1.

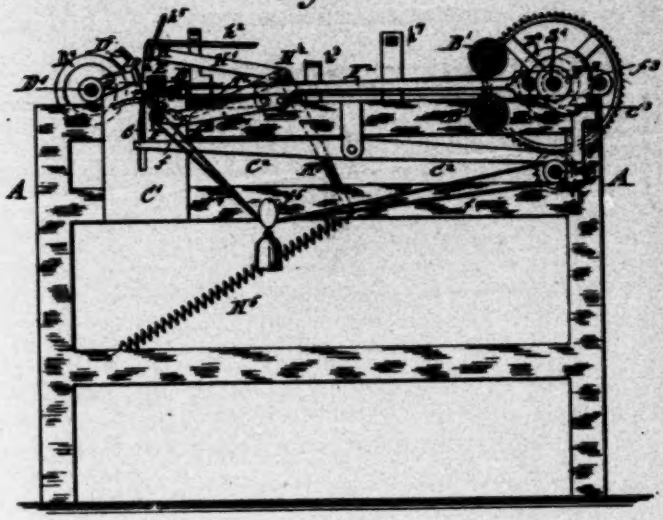


Fig: 2.

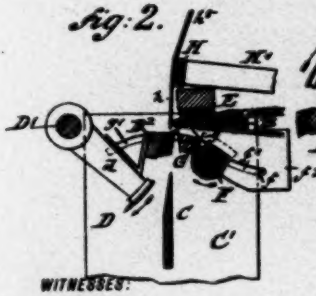
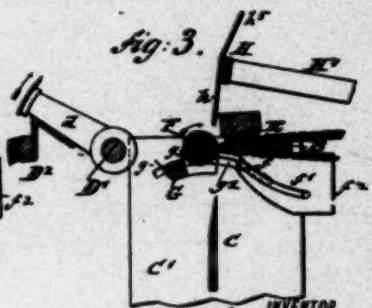


Fig: 3.

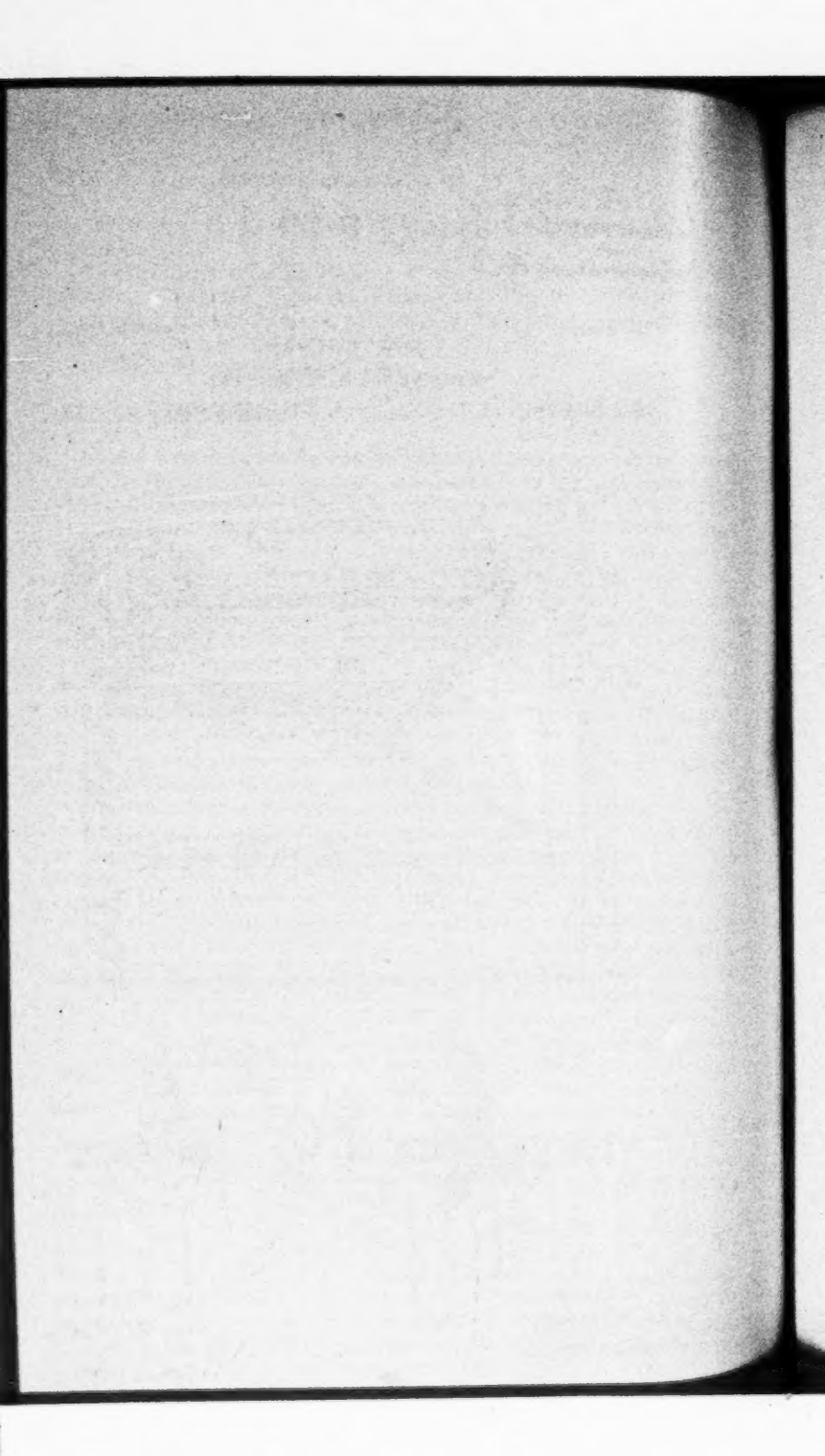


WITNESSES:

A. Schehl.
Martin Petry.

INVENTOR.

John W. Sutton.
BY
[illegible]



No. 192
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v.
American Co
} p. 167b

(No Model.) 3 Sheets—Sheet 2.

J. W. SUTTON.

MACHINE FOR PLUCKING FURS.

No. 383,258. Patented May 22, 1888.

Fig: 4.

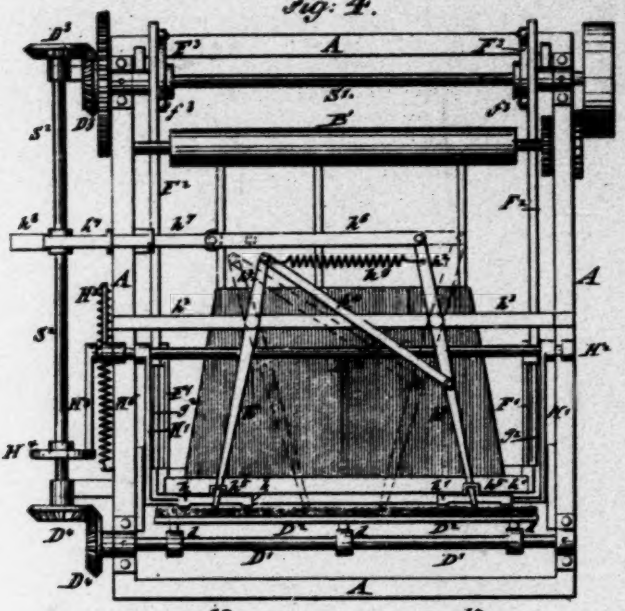


Fig: 5.

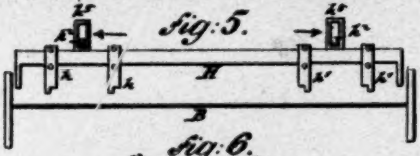
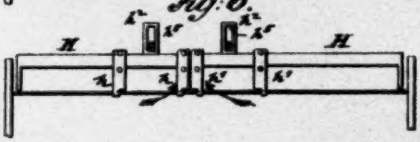


Fig: 6.



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A. Schohl.
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No. 192
Cimatto Co
+
American Co } p. 167c

(No Model.) 3 Sheets—Sheet 3.

J. W. SUTTON.

MACHINE FOR PLUCKING FURS.

No. 383,258 Patented May 22, 1888.

Fig: 7.

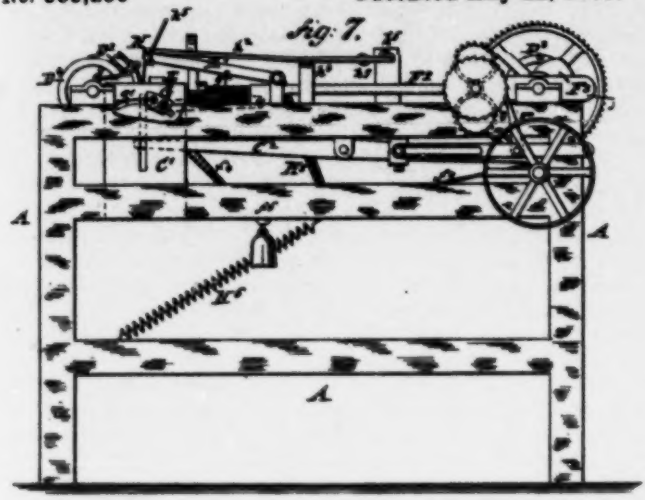

Fig: 8.

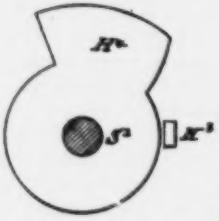

Fig: 9.

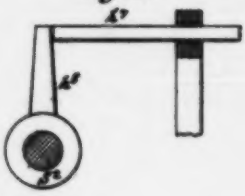

Fig: 10.

WITNESSES:
A. Schehl.
Martin Petry.

INVENTOR
John W. Sutton
BY George & Raegener
ATTORNEYS.

tary knife D, and at some distance back of the latter, is applied a carding-brush, $D^2$, which acts on that part of the skin that is fed forward over the edge of the stretcher-bar immediately after the hairs of the next preceding section of the skin have been cut off. The shaft D′ of the cutting-knife D is rotated from the cam-shaft S′, by means of an intermediate longitudinal shaft, $S^2$, and two sets of miter-wheels, $D^3$ $D^4$, as shown clearly in Fig. 4.

Immediately above the stretcher-bar B is arranged a stationary card, E, which is attached to the ends of the stretcher-bar B by means of thumb-screws. (Not shown in the drawings.) The points of the teeth of the card E are close to but do not touch the surface of the skin, so that the hair and fur are both straightened as the skin is fed forward. The teeth of the card E hold down the fine fur, but permit the stiff hairs to stand up between the teeth, owing to the slow forward movement of the skin, which gives the hairs sufficient time to so adjust themselves.

Below the stretcher-bar B is arranged a rotary separating-brush, F, which is supported in oscillating arms F′, that are guided by pins $f$ in arc-shaped slots $f'$ of fixed guide-plates $f^2$, as shown clearly in Figs. 1, 2, and 3, the oscillating arms F′ being pivoted to horizontally-reciprocating connecting-rods $F^2$, which are provided with yokes $f^3$, having anti-friction rollers at their rear ends and acted upon by cams $F^3$ on the cam-shaft S′, the cams being so shaped and timed that the forward and upward motion of the brush F takes place at the proper time.

The brush F receives rotary motion from two belts, $f^4$, which pass over pulleys $f^5$ on the shaft S′ and the brush shaft, and which are kept taut by weighted idlers $f^6$, as shown clearly in Fig. 1.

The brush F is made of soft bristles and is rotated at a speed of one hundred and fifty revolutions per minute. The soft bristles allow the stiff hairs to stand, while the quick motion of the brush bends the soft hair in downward direction and brushes it below the stretcher-bar, so that it can be taken up and held in position by the soft-rubber wipers $g$ of an oscillating guard-bar, G, which moves in arc-shaped slots $g'$ of the guide-plates C′. The guard G receives oscillating motion by pivot-links $g^2$ from the connecting-rods $F^2$ of the separating-brush F, as shown in Figs. 1 and 7. A guide-bar, H, is supported on arms H′ at some distance above the stretcher-bar, said arms being applied to a transverse shaft, $H^2$, which shaft is oscillated by means of an arm, $H^3$, that is engaged by a cam, $H^4$, on the longitudinal shaft $S^2$. (Shown in Figs. 4 and 8.) A second downwardly-extending arm, $H^5$, on the shaft $H^2$ is connected by a spring, $H^6$, to the supporting-frame, said spring returning the guide-bar H to its normally-raised position as soon as the action of the cam $H^4$ on the arm $H^5$ has been completed. On the guide-bar H are supported two pairs of laterally-reciprocating rubbers, $h$ $h'$, which are guided on said bar and quickly moved over the same by means of oscillating levers $h^2$, that are fulcrumed to a transverse bar, $h^3$, of the supporting-frame H and connected by a link, $h^4$, that

is pivoted to one lever $h^2$ in front of its fulcrum and back of the fulcrum of the other lever $h^2$, as shown in Fig. 4. The front ends of the levers $h^2$ engage slotted and slightly-inclined keepers $h^5$ of each pair of rubbers $h$ $h'$. The rear end of one of the levers $h^2$ is connected by a pivot-rod, $h^6$, with a laterally-guided rod, $h^7$, that is intermittently actuated by a cam, $h^8$, on the longitudinal shaft $S^1$, (shown in detail in Fig. 9,) said cam producing the motion of the levers $h^2$ and rubbers $h$ $h'$ toward each other into the positions shown in dotted lines in Fig. 4, while a spiral spring, $h^9$, that connects the rear ends of the levers $h^2$, quickly returns the lever $h^2$ and rubbers $h$ $h'$ to their normal positions as soon as the cam $h^8$ has completed its work.

By the combined oscillating motion of the guide-bar H, as produced by the cam $H^4$, (shown in Fig. 8,) and the laterally-reciprocating motion of the rubbers $h$ $h'$, produced by the cam $h^8$, (shown in Fig. 9,) the rubbers $h$ $h'$ are quickly passed over that part of the skin in front of the stretcher-bar, so that the stiff hairs that lie down close to the skin at the portion around the neck and shoulders of the same are raised and presented to the action of the cutting-knives. When the rubbers $h$ $h'$ arrive at their innermost positions, as shown in Fig. 6, the guide-bar H is raised and simultaneously the rubbers $h$ $h'$ returned to their former positions by the levers $h^2$ and spring $h^9$.

The operation of the machine is as follows: The skin is placed in the machine by being attached to the feed-rollers and drawn tightly over the edge of the stretcher-bar, so as to lie close to the upper and lower surface of the same. The skin is put in in such a manner that the head end is foremost. The stiff hairs in sealskins point toward the tail, except at the lower part of the neck and shoulders. These parts are at the sides of the head end of the skin, as the skin is split open at the under side. At these parts of the skin the hairs point outwardly and backwardly and are the most troublesome to cut or pluck, as they lie down close to the skin when it is drawn over the stretcher-bar. A sharp and quick rub over these
167½ parts of the skin from the edge toward the center of the skin is therefore necessary, so as to straighten up the hairs and present them to the action of the cutting-knives. When the skin is in place, the stationary card E is drawn backward a few times over that part of the skin that is upon the stretcher-bar B, so as to card back the fur and hair and produce thereby a parting of the fur at that part of the skin then covering the edge of the stretcher-bar. One half of the fur upon that section of the skin will by the parting be kept above and the other half below the edge of the stretcher-bar. This permits the hair upon that section of the skin in front of the edge of the stretcher-bar to rise through the fur and keep its place with less trouble than when more fur is acted upon. When the fur and hair have been carded back by the card E, the same is fastened to the stretcher-bar by thumb screws. The card is set back from the edge of the stretcher-bar to a distance a little more than one-half of the length of the fur for the purpose of holding the fur

and preventing it from moving forward until the forward motion of the skin takes place. The card at the back of the rotary knife passes then over the skin in front of the edge of the stretcher-bar and draws out all the fur and hair on that section, so that the fur and hairs so drawn out assume their natural positions—that is, the positions which they would have if the skin were drawn over the edge of the stretcher-bar without anything for holding back the fur and hair. As soon as the card at the back of the rotary knife has passed over the section of the skin in front of the stretcher-bar the rubbers are quickly moved over the same toward the center, whereby the hairs that lie down sidewise are raised and pointed outwardly, causing them to stand upright. The rotary separating-brush is then quickly moved upward and forward and revolved in front of the skin at the edge of the stretcher-bar, so as to separate the fur from the hairs, brushing down the former and leaving the stiff hair standing out. The rotary separating-brush is then quickly moved backward and downward, so as to carry with it the separated fur, which is then held in position by the oscillating guard that follows the brush and carries the fur still farther back and holds it in position, while the vertical knife is raised and shears off, in conjunction with the rotary knife, the forward-projecting hairs, as shown in Fig. 1. The separating-brush, after it has accomplished its work, is lowered sufficiently so as not to touch the skin at all, except when it is in front of the working-edge of the stretcher-bar. The next section of the skin is now moved by the feed-rollers over the edge of the stretcher-bar and the same operation of the parts produced by the next rotation of the driving-shaft, and so on until the skin is finished. When the plucking of the skin at the neck and shoulders has been accomplished, the action of the rubbers may be dispensed with, which is accomplished by loosening the cams $H^4$ $h^8$ on the shaft $S^1$, so that the guide-bar H and the rubbers $h$ $h'$ are not acted upon by the transmitting mechanisms and held in a position of rest.

The operation of the machine is quick and reliable, the hair being cut off close to the skin and without injury to the fur, which is held back so as not to be presented to the knives by the action of the stationary card above and the joint action of the separating-brush and oscillating guard below the stretcher-bar.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. The combination of a fixed stretcher-bar, means for intermittently feeding the skin over said stretcher-bar, a stationary card above said stretcher-bar, and a vertically-reciprocating knife and a rotary knife, substantially as set forth.

2. The combination of a fixed stretcher-bar, means for intermittently feeding the skin over said stretcher-bar, a stationary card above the stretcher-bar, a vertically-reciprocating knife, a rotary knife, and a card applied to arms of the rotary knife back of the same, substantially as set forth.

3. The combination of a fixed stretcher-bar, means for stretching and intermittently feeding the skin over said stretcher-bar, a stationary card above said stretcher-bar, a rotary separating-brush below the stretcher-bar, mechanism for moving said brush in front of the stretcher-bar at the proper moment, an oscillating guard below the stretcher-bar, and a vertically-reciprocating knife and a rotary cutting-knife, substantially as set forth.

4. The combination of a fixed stretcher-bar, means for intermittently feeding the skin over said bar, a stationary card above the stretcher-bar, vertically-oscillating and laterally-reciprocating rubbers moving in front of the edge of the stretcher-bar, a rotary separating-brush, an oscillating guard below the stretcher-bar and a vertically-reciprocating knife and a rotary cutting-knife, substantially as set forth.

5. The combination of a fixed stretcher-bar, means for intermittently feeding the skin over said bar, a stationary card above said stretcher-bar, an oscillating guide-bar, laterally-reciprocating rubbers on said guide-bar, a rotary separating-brush, an oscillating guard, and a vertically-reciprocating knife and a rotary knife, substantially as set forth.

6. The combination of a fixed stretcher-bar, means for intermittently feeding the skin over said bar, a stationary card above said bar, an oscillating guide-bar, and laterally-reciprocating rubbers on said guide-bar, substantially as set forth.

7. The combination of a fixed stretcher-bar, means for intermittently feeding the skin over the same, a guide-bar above the stretcher-bar, means for oscillating said bar, two pairs of rubbers guided on said bar, and means for imparting laterally-reciprocating motion to said rubbers, substantially as set forth.

167½ 8. The combination of a fixed stretcher-bar, means for intermittently feeding the skin over the same, a stationary card above the stretcher-bar, a rotary separating-brush below the same, and mechanism, substantially as described, whereby the rotary brush is moved upward and forward into a position in front of the stretcher-bar, substaantially as set forth.

9. The combination of a fixed stretcher-bar, means for feeding the skin intermittently over the same, a fixed card above the stretcher-bar, a rotary separating-brush, pivoted arms for said brush, slotted guide-plates for said arms, connecting-rods having cam-yokes, and a driving-shaft having cams, whereby an upward and forward motion is imparted to the rotary separating-brush, substantially as set forth.

10. The combination of a fixed stretcher-bar, means for feeding the skin over the same, a stationary card above the stretcher-bar, a rotary brush below the same, mechanism for moving the brush forward and in front of the stretcher-bar, an oscillating guard having wipers, guide-plates having arc-shaped slots for said guard, pivot-links attached to the guard, connecting-rods having cam-yokes, and a driving-shaft having cams for engaging said cam-yokes, substantially as set forth.

11. The combination of a fixed stretcher-bar, B, an oscillating guide-bar, H, above the same, a shaft, $H^2$, having arms $H^3$ $H^4$, a spring, $H^6$, rubbers $h$ $h'$, having slotted keepers $h^5$, fulcrumed arms $h^7$, connecting-link $h^4$, spring $h^9$, rods $h^6$ $h^7$, and shaft $S^1$, having cams $H^4$ and $h^3$, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHN W. SUTTON.

Witnesses:

PAUL GOEPEL.
CARL KARP.

168 United States Patent Office.

JOSEPH KOKESCH, of Paris, France.

*Improvement in Treatment of Seal-skins.*

Specification forming part of Letters Patent No. 195,826, dated October 2, 1877; application filed June 18, 1877.

To all whom it may concern:

Be it known that I, Joseph Kokesch, of Paris, France, have invented improvements in the treatment of seal-skins, and for which letters patent were granted to me in the Republic of France for fifteen years from the 11th day of May 1877; in the Kingdom of Belgium for twenty years from the 9th y of May, 1877; and in the Kingdom of Great Britain for a term of fourteen years from the 29th day of May, 1877.

My invention relates to improvements introduced into the treatment of seal-skins for the purpose of giving to their fur the appearance of the more valuable furs of the otter and beaver.

To this end I submit the raw or finished seal-skin to the action of a shearing-machine, by means of which the hair is reduced to the length of that of the otter or beaver to be imitated, the skin being previously or subsequently passed through a fulling-mill to reverse the direction of the fur.

To the skin thus shorn I apply a mordant composed of quicklime, one pound; beech-ashes, one and a half pound; sumach, three ounces; water, twenty quarts. Of this mordant I employ about one gallon for every eight skins, immersing the latter in said mordant for about five hours, after which it is dyed in a bath composed of gall-nuts, one and a half pound; green copperas, three ounces; copper scales, two ounces; litharge, one and a half ounce; sal-ammoniac, one and a half ounce; verdigris, one-half ounce; catechu, two ounces; rotton-stone, two ounces; cinnabar, one ounce; water, thirty quarts; the above ingredients to be boiled together for, say, one hour and a half, or until the volume of the mass is reduced to about twenty quarts.

Of the dye I employ about three gallons for every eight skins, allowing them to be drawn, or passed through, or dipped into the dye about four times, brushing each skin after every immersion. When so treated the skins should be allowed to remain in a wet state for about twelve hours and then dried.

It will, however, be obvious that the ingredients composing both the mordant and the dye may be varied slightly as to their respective qualities; so will the time of steeping the skins in the mordant and the number of immersions in the dye vary according to circumstances and the nature of the skins to be treated, which will, in a

great measure, depend on the thickness of the fur and that of the hide.

What I claim is—

1. In the treatment of seal-skins, preparing such skins by first subjecting them to a process of shearing to reduce the length of the hair, as set forth; secondly, to a process of fulling to reverse the hair; and, finally, mordanting said skins, substantially as described, for the purpose specified.

2. In the treatment of seal-skins, preparing such skins by first subjecting them to a process of shearing; secondly, to a process of fulling; thirdly, mordanting said skins; and, finally, immersing them a number of times in succession into a dye, brushing each skin after every such immersion, in the manner and for the purpose specified.

3. In the treatment of seal-skins, a mordant consisting of quick-lime, beech-ashes, sumach, and water, in or about in the quantities specified, for the purpose as set forth.

4. In the treatment of seal-skins, a dye consisting of gall-nuts, green copperas, copper scales, litharge, sal-ammoniac, verdigris, catechu, rotten-stone, cinnabar, and water, in or about in the proportions as hereinbefore described, for the purpose specified.

J. KOKESCH.

Witnesses:

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J. FONTENELLE,
*Clerks to Mess. Mennons & Co., Patent Solicitors, Paris.*

169 United States Patent Office.

WALTER D. DAVIES, of Brooklyn, and FRANCOIS A. LAMBERT, of New York, assignors to said Davies and Henry J. Davies, of Brooklyn, New York.

*Improvement in Striking Movements for Clocks.*

Specification forming part of Letters Patent No. 200,518, dated February 19, 1878; application filed December 27, 1877.

To all whom it may concern:

Be it known that we, Walter D. Davies, of the city of Brooklyn, in the county of Kings and State of New York, and Francois A. Lambert of the city, county and State of New York, have invented certain new and useful improvements in striking-movements for clocks, of which the following is a description, reference being had to the accompanying drawing, forming part of this specification.

(Here follow diagrams marked pp. 169 *a*, *b*, and *c*.)

This invention consists in various novel combinations of devices for insuring, in a simpler or more perfect manner than has heretofore been done, the proper action of the striking-movement when the said movement is once properly adjusted in relation to the hands of the clock, so that the clock may always strike the hour indicated by the hands, and the correctness of the striking will not be affected by turning the hands forward or backward.

Figure 1 represents a sectional front elevation of a clock, in part, having our invention applied, and showing the striking mechanism in position after the clock has struck a full hour. Fig. 2 is a horizontal section of the same, in part, mainly on the line *z z*. Fig. 3 is a mainly central vertical transverse section of the same, in part. Fig. 4 is a sectional front elevation, in part, showing the striking mechanism in position shortly before striking the half-hour. Fig. 5 is a sectional front elevation, in part, showing the striking mechanism in position shortly before striking twelve; and Fig. 6, a further sectional front elevation, in part, showing the striking mechanism in position during the act of striking. Fig. 7 is a rear view of a ratchet-wheel with attached dog, used in our invention; and Fig. 8, a longitudinal view of a lever with attached shoe, used in connection with the striking-wheel of the clock and with the wheel which carries the dog.

A represents the frame of the clock, which frame may be of any suitable construction. B is the minute-wheel arbor, having attached to it a long tappet, *b*, and a shorter tappet, *c*, the first one, *b*, of which is used in striking the hour, and the latter one, *c*, in striking the half-hour. In clocks which do not strike the half-hour, the tappet *c* is omitted. C is one of the arbors of the train-gear, by which motion is communicated from the mainspring.

No. 192
Cimiotti Co. } p. 169a
American Co.

3 Sheets—Sheet 1.

# W. D. DAVIES & F. A. LAMBERT.

## Striking Movements for Clocks.

No. 200,518. Patented Feb. 19, 1878.

Fig. 1.

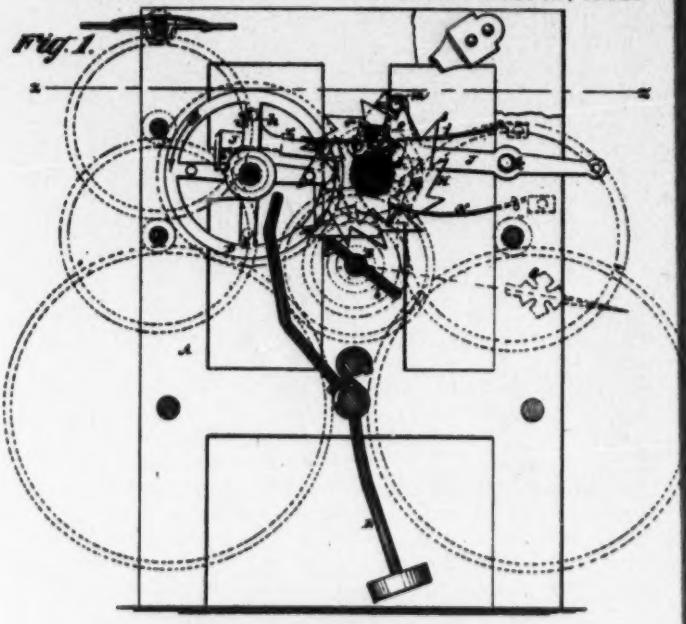
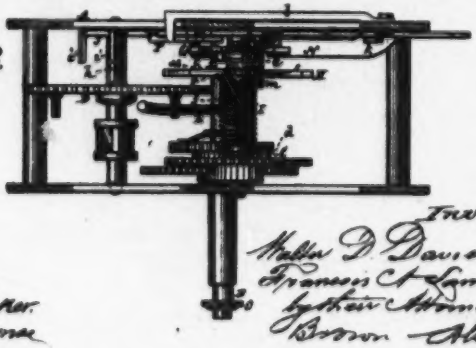


Fig. 2.



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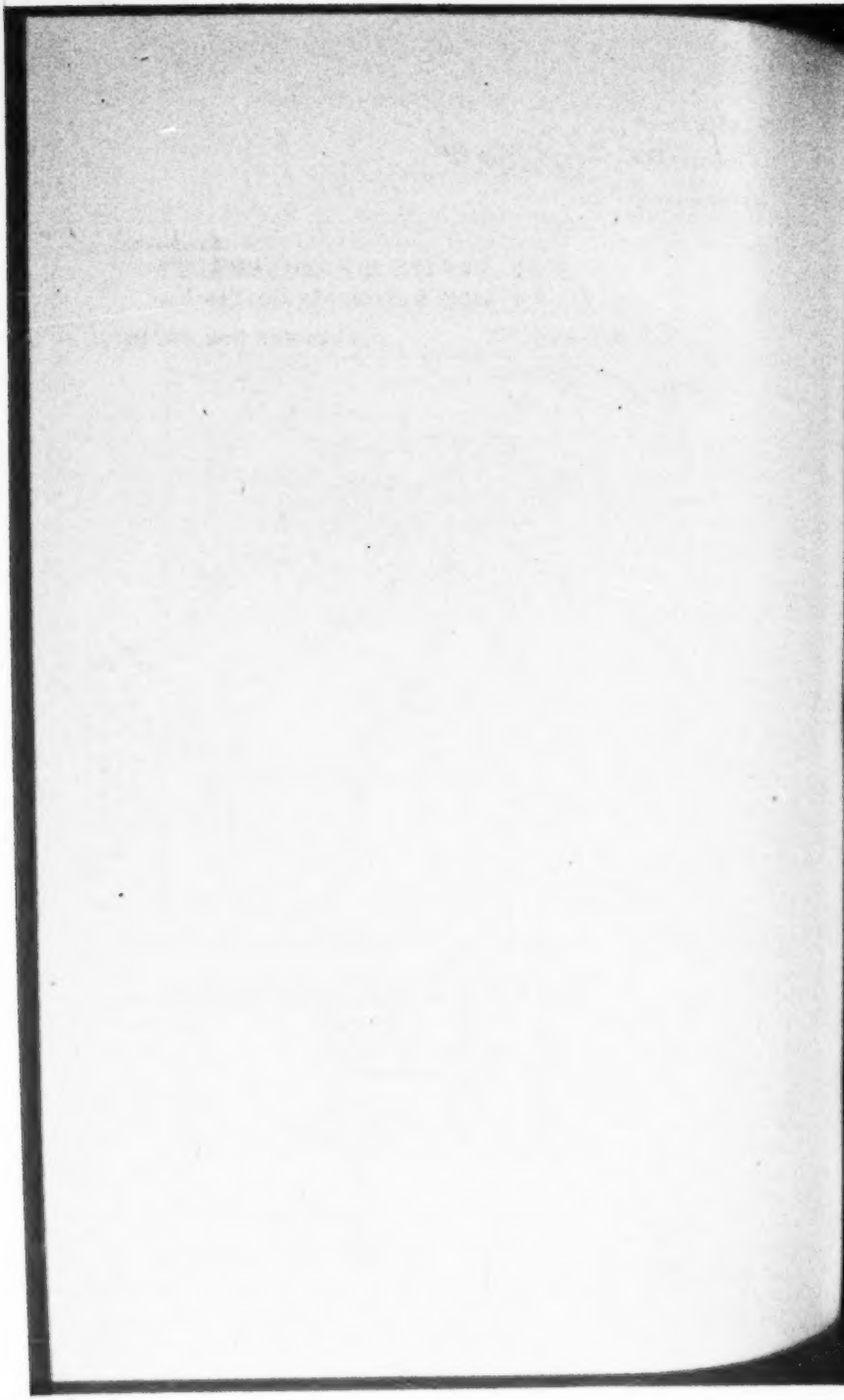
John Becker.
Jno Haynes

Inventor
Walter D. Davies
Francis A. Lambert
by their Attorneys
Brown & Allen



No. 192
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3 Sheets—Sheet 2.

W. D. DAVIES & F. A. LAMBERT.
Striking Movements for Clocks.

No. 200,518. Patented Feb. 19, 1878.

Fig. 4.

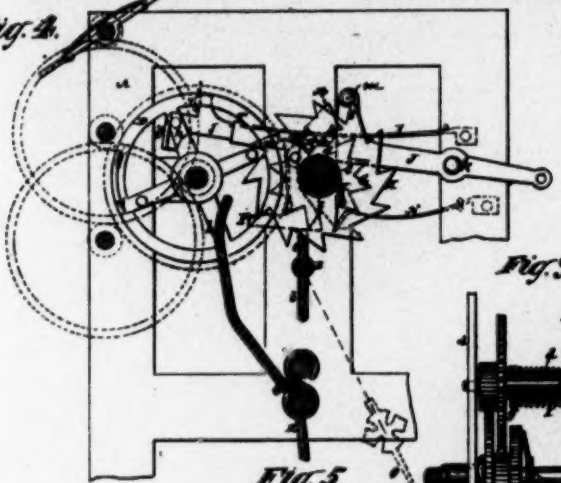


Fig. 3.

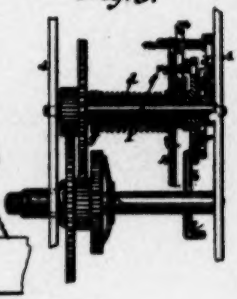
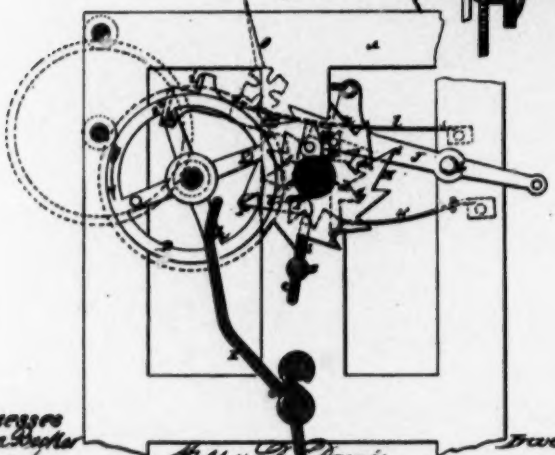


Fig. 5.



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No. 192
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Amiseau Co

3 Sheets—Sheet 3.

W. D. DAVIES & F. A. LAMBERT.
Striking Movements for Clocks.

No. 200,518. Patented Feb. 19, 1878.

Fig. 6.

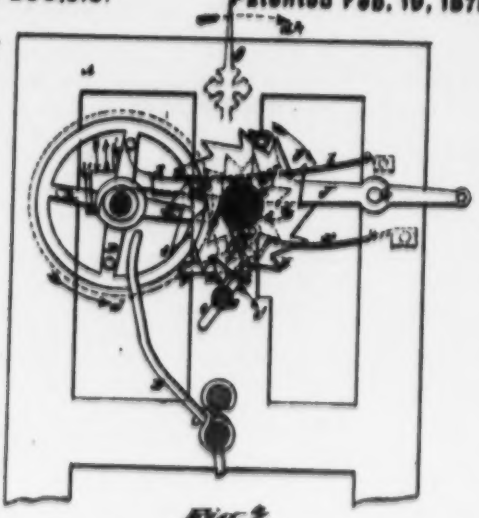

Fig. 7.

Fig. 8.

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Francis A. Lambert
by their Attorneys
Brown & Allen

D is the striking-wheel, which lifts the hammer E of the clock, and is operated, when released, by an independent spring, as usual. Weights may be substituted for the springs, to actuate the time movement and the striking movement.

Arranged preferably upon the arbor C is a loose sleeve, *d*, having attached to it a star-wheel, G, containing twelve teeth, and which is moved a tooth at a time once every hour by the tappet *b* of the minute-arbor, the half-hour tappet *c* not coming in contact with said wheel. N is a resistance-spring, applied to the star-wheel G to hold it from moving except when actuated by the tappet *b*. Upon one side or face of this wheel G is a stop or pin *e*, which, by means of the wheel G and hour-tappet *b* operating the latter, (or it may be by any other devices connected with the time movement of the clock,) moves through an equal space each succeeding hour, and only completes a revolution once in twelve hours.

Arranged loosely upon or around the sleeve *d* is another loose sleeve *f*, which has attached to it a ratchet-wheel, H, containing twelve teeth. This wheel H is connected with the star-wheel G, or device carrying the stop *e*, by a coiled spring, I, fast at its one end to the ratchet-wheel H, and at its other end to a collar, *g*, fast on the sleeve *d* of the wheel G. Said spring is coiled, so that the operation of the star-wheel G by the tappet *b* exerts a winding action upon it.

J is the lever by which the striking-wheel D is held or released, accordingly as a pin, *h*, or each one in succession of a pair of pins, *h*, on said wheel is arrested by or released from contact with a prong, *i*, or by or with each one in succession of a pair of prongs, *i i'*, on the lever J. This lever, which is pivoted at *k* and is held down to lock the striking-wheel by a spring *l*, is provided with a stud or pin, *m*, which, when the lever J is down, engages with the ratchet-wheel H to hold it, and acts as a rest, when the clock completes its
169½ strike, for a dog, M, on the side or face of the ratchet-wheel, the pin or stop *e* on the star-wheel G serving for the dog M to bear or rest against prior to the clock striking the hour; and according to the distance apart of the pins *m* and *e* will the count or number of strikes be determined.

The spring I rotates the ratchet-wheel H to throw the dog M back against the pin or stop *e* each time, except when striking the half-hour, when the pin *m* is raised by the lever J to clear its engagement with the ratchet-wheel. This motion of the ratchet-wheel H and dog M is in a reverse direction to the motion of said wheel by the striking-wheel D, the pins *h* on which serve as drivers of the wheel H.

In Fig. 6, the arrow *a'* indicates the motion of the striking-wheel D; the arrow *b'*, the motion of the ratchet-wheel H when the latter is driven by the striking-wheel; arrow *c*, the motion of the hour-striking tappet *b* on the minute-wheel arbor B; and the arrow *d'*, the motion of the minute-hand O.

The lever J is raised indirectly by the tappets *b c* through the instrumentality of a shoe, P, which is pivoted at *n* to the lever J, and is held in position on said lever by a lip, *r*, and the spring *l*.

When the clock is turned backward the tappets *b* and *c* simply lift the shoe P against the pressure of the spring *l* without raising the lever J, which latter consequently continues to hold the striking mechanism in check, and only the pin or stop *e* on the star-wheel is adjusted to correspond with the back adjustment of the hands of the clock. On the other hand, when the clock is set forward, the lever J is raised through its shoe P by the tappet *b* or tappets *b* and *c*, thereby causing the striking to be continued the same as if the action were taking place under the influence of the mainspring. Thus, when once the hands of the clock are set to conform with the striking-movement, no future manipulation of said hands, whether backward or forward, will interfere with or disarrange said striking-movement.

One of the teeth *s* of the ratchet-wheel H is made longer than the other teeth of said wheel, so that when the short or half-hour tappet *c* of the minute-arbor B lifts the lever J to release the striking-wheel, it only raises said lever sufficiently high to cause the pin *m* to clear that one of the smaller teeth which is immediately in advance of the larger tooth *s*, and so that the pin or stop *m* on the lever J arrests, by its contact with said larger tooth, the back motion of the wheel H by the spring I; and the striking-wheel, being liberated by the rise of the lever J, gives a single strike to indicate the half-hour, and one of the pins *h* on the striking-wheel strikes a tooth of the wheel H to return it to its normal position, so that the future striking of the hour is not interfered with. When the lever J is thus lifted by the shorter tappet *c* to strike the half-hour, one of the prongs *i* is raised to clear one of the pins *h* of the striking-wheel, resting against it, and the said pin is caught by the other prong *i'* of the lever J, which action causes the usual "warning" to be given before the clock strikes. This occurs while the ratchet-wheel H is moving a single tooth in advance of the larger tooth *s*, catching the pin *m*, after which the lever J drops, and the same pin *h* passes over the prong *i'*, and the wheel moves through a limited space to effect the strike of the half-hour, and to return the ratchet-wheel to its normal position, as hereinbefore described, when the wheel D will be again arrested by a pin, *h*, striking the first-named prong *i*, which is left slightly raised for such purpose whenever the striking-movement is at rest by the pressure of the dog M on or under the pin *m* of said lever. In striking the hour the same operation takes place as in striking the half-hour, with the exception that, the lifting-tappet *b* being longer than *c*, the lever J is raised sufficiently to enable the stud or pin *m* to pass over the long tooth *s* of the ratchet-wheel H, so that said wheel has a longer run, the pin *m* falling to the bottom of each succeeding tooth, which allows of the pins *h* on the wheel D clearing the prongs *i i'* till the dog M again comes up against the pin *m* of the lever J, and, slightly lifting said lever, causes the raised prong *i* to again arrest the striking-wheel D.

As the pin or stop *e* moves through equal spaces each hour, and only completes a revolution once in twelve hours, it necessarily fol-

lows that the spring I, which, in unwinding, brings the dog M against said stop *e*, has its unwinding action limited, so that, while for each strike of the clock from the hour of one to that of twelve the unwinding of it is regularly increased, and it is always wound up again to its normal tension after each strike, it never is unwound more than a full turn or single revolution of the ratchet-wheel H and dog M connected therewith, thus preserving the integrity of said spring.

When the clock is about to strike twelve, it is necessary that the dog M should drop or get out of the way of the tooth *u* (see Fig. 5) on or down into the back of which the pin *m* is required to drop when the clock commences to strike said hour. To effect this the dog M has lost motion in its attachment to or connection with the ratchet-wheel H by a projection, *v*, on the dog within a slot, *b'*, on the wheel H, so that when the pin or stud *m* is raised, the position of the pin *e* in coming round admits of the dog M falling onto said pin and leaving the tooth *u*, Fig. 5, clear for the pin or stud *m* of the lever J to fall down over the back of said tooth. This is as the stop *e* passes from one side of the pin *m* to the opposite side thereof, as shown in Fig. 5. This lost motion of the dog M, however, may be variously provided for and other changes made without departing from the characteristic principle of our invention. Thus, for instance, it is not absolutely necessary that the pin *m* should act as a stop to the dog M when worked back by the striking-wheel; 169] but the lever J may be constructed to work in connection with an independent stop on the ratchet-wheel H to arrest the latter, and with it the dog M, in its or their one movement.

We claim —

1. The combination of the wheel H, actuated in one direction by the striking-wheel or by the mechanism which drives the said wheel, a dog, M, connected with said wheel so as to move in concert therewith, a revolving stop, *e*, operated by the time-movement of the clock through an equal space each succeeding hour, a coiled spring, I, applied between the said wheel H and the said stop *e*, and a lever, operated by the time-movement of the clock, to control the liberation and stoppage of the striking-wheel and of the said wheel H and its dog M, substantially as specified.

2. The combination, with the minute-wheel arbor B, having one or more tappets, *b c*, the star-wheel G, having an attached pin or stop, *c*, the ratchet-wheel H, having an attached dog, M, the spring I, the lever J, and the striking-wheel D, essentially as described.

3. The dog M, provided with slip or lost motion, in combination with the ratchet-wheel H and the pin or stop M on the lever J, substantially as specified.

WALTER D. DAVIES.
FRANCOIS A. LAMBERT.

Witnesses:
VERNON H. HARRIS.
FRED. HAYNES.

170 United States Patent Office.

SAMUEL D. CASTLE, of Bridgeport, Connecticut.

*Improvement in Treating Furs.*

Specification forming part of Letters Patent No. 213,735, dated April 1, 1879; application filed February 24, 1879.

To all whom it may concern:

Be it known that I, Samuel D. Castle, of Bridgeport, Fairfield county, Connecticut, have invented improvements in treating furs, of which the following is the specification:

My invention consists in an improved mode of converting pelts into dressed furs, whereby I avoid the expense of ordinary means, consisting in removing the long or "master" hairs, and avoid reducing the body of hair on the fur-surface.

(Here follows diagram marked p. 170a.)

In the drawings forming a part of this specification, figure 1 is a section of the apparatus, showing the shearing and combing devices; Fig. 2, a plan view; Figs. 3 to 5, diagrams illustrating the process of treating the pelts.

In the pelts of various animals the fine hair or fur in its natural condition lies closely bent and packed to the surface of the skin, while the long or master hairs project beyond the fur and constitute the main hair-face of the pelt.

Heretofore it has been common to remove the long hairs by first cutting away the inner face or back of the skin until the roots of hairs are exposed, and then picking such hairs out. This is not only an expensive process, but the removal of the hairs diminishes the thickness or body of the wearing or hair face.

In order to retain the entire body of hair upon the face of the pelt, and at the same time secure a face of fine fur, I submit the pelt, after the skin has been tanned and dressed as usual, to the action of a revolving spiral or other shaped cutter, A, Fig. 1, operating with a stationary blade, B, between which and the edges of the spiral knives the master hairs are cut and the fur sheared to a nearly uniform surface.

Owing to the stiffness and greater thickness of the master hairs, they stand out rigidly from the hide between the cutting-edges, and are sheared closely off; but the fine fur in its natural condition is bent and packed down, as shown in Fig. 3, and also bends when submitted to the cutters. I take care, therefore, to cut the master hairs as close as possible without more than shaving the face of this packed mass of fur, so that when the pelt has been submitted to the

No. 192
Cimiotti Co. } p. 170 a
v.
American Co.

S. D. CASTLE.
Treating Fur.

No. 213,735. Patented April 1, 1879.

Fig. 1.

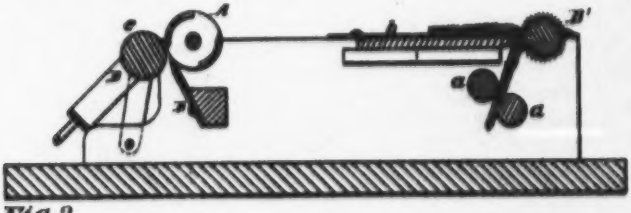


Fig. 2.

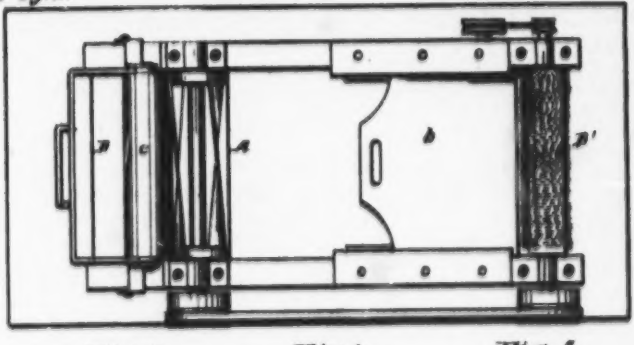


Fig. 3.

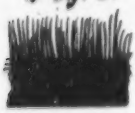

Fig. 4.

Fig. 5.

Attest:
Courtney A. Cooper
William Paxton

Inventor:
S. D. Castle
By his attorney
Charles E. Foster

cutters it is in the condition illustrated in Fig. 4. I now pass the pelt between feed-rolls *a a*, which draw it over the edge of a blade, *b*, and opposite a rapidly-revolving card, B′, the teeth of which penetrate the mass of packed fur, and comb and straighten the hairs of the same, so that they will extend beyond and conceal the shorter master hairs, as illustrated in Fig. 5. As the fine hairs thus combed out and brought to the surface are of unequal length, the pelt may be again submitted to the shearing-machine, by which the face is shaved to a uniform level, but without cutting to the master hairs. The whole may be, if necessary, again combed.

In order to regulate the extent of the shear, the pelt is passed over a roller, *e*, (or rounded-edged plate,) carried by a swinging or adjustable frame, D, arranged in juxtaposition to the cutters A B, the said frame being controlled by the attendant as the pelt is operated upon; and, if desired, the roller *e* may be driven by a belt or suitable gearing to feed the pelt past the cutters. By this means I secure a furred skin in which the exposed wearing-surface is mostly fine fur, while I do not diminish the body of hair upon the pelt, which will therefore wear better, is more durable, and affords a better covering than those treated by removing the master hairs in the usual manner.

A further advantage of this process is the utilization of coarse pelts which it would not be practicable to treat in the ordinary manner.

I claim—

1. The within-described mode of treating pelts, consisting in first shearing the face to cut short the master hairs, and then combing out the fine hair or fur, substantially as set forth.

2. The mode of treating pelts by subjecting the same to the action of a revolving card, as specified.

3. The combination, in an apparatus for treating pelts, of the cutters and an adjustable frame, D, arranged to operate therewith, substantially as set forth.

4. The combination, in an apparatus for treating pelts, of the revolving card B and adjustable plate *b*, or its equivalent, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL D. CASTLE.

Witnesses:

H. E. BOWSER.
AMOS FULLER.

171 United States Patent Office.

SAMUEL D. CASTLE, of Bridgeport, Connecticut.

*Improvement in Fur Articles.*

Specification forming part of Letters Patent No. 213,736, dated April 1, 1879; application filed February 18, 1879.

To all whom it may concern:

Be it known that I, Samuel D. Castle, of Bridgeport, Fairfield county, Connecticut, have invented an improved article of fur, of which the following is a specification:

The object of my invention is a dressed fur made from buffalo-pelts, and constituting a substitute for dressed beaver, seal-skin, and other ornamental furs used for caps, cloaks, and other articles of apparel.

Heretofore buffalo-pelts have been used for carriage-robes, mats, and other similar purposes; but no attempt has ever been made to employ them as dress-goods, owing to the body of long coarse hair, which, unless removed, would render such use impracticable, and the removal of this hair has not heretofore been attempted in consequence of the expense of the modes in use for such purposes.

Every such pelt is covered by a body of the coarse hairs before referred to, and termed "master hairs," and by a body of short hair or fur, which is usually concealed by the master hairs, but constitutes a fine close covering for the skin.

(Here follows diagram marked p. 171*a*.)

In order to expose this fine fur, and at the same time conceal to a great extent the master hair without wholly removing the latter, (which in many instances would leave too little body to the hairy surface, exposing the hide,) I submit the pelt, after the skin has been tanned and dressed as usual, to the action of a revolving spiral or other shaped cutter, A, Fig. 1, operating with a stationary blade, D, between which and the edges of the spiral knives the master hairs are cut and the fur sheared to a nearly uniform surface, Fig. 2.

Owing to the stiffness and greater thickness of the master hairs, they stand out rigidly from the hide between the cutting-edges, and are sheared closely off; but the fine fur, in its natural condition, is bent and packed down, as shown in Fig. 2, and also bends when submitted to the cutters. I take care, therefore, to cut the master hairs *x* as close as possible without more than shaving the face of this packed mass of fur, so that when the pelt has been submitted to the cutters it is in the condition illustrated in said Fig. 2.

I now pass the pelt between feed-rolls *a a*, which draw it over the

No. 192
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American Co } p. 171a

S. D. CASTLE.
Fur Articles.

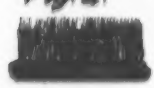
No. 213,736. Patented April 1, 1879.

Fig. 1.

Fig. 3.

Fig. 2.

Fig. 4.



Attest:
William Paxton
Courtney A. Cooper

Inventor
S. D. Castle
By his attorney
Charles E. Foster

edge of a blade, *b*, and opposite a revolving card, B′, the teeth of which penetrate the mass of packed fur, and comb and straighten the hairs of the same, so that they will extend beyond and conceal the shorter master hairs, as illustrated in Fig. 4.

As the fine hairs thus combed out and brought to the surface are of unequal length, the pelt may be again submitted to the shearing-machine, by which the face is shaved to a uniform level without unduly exposing the master hairs. The whole may then, if necessary, be again combed.

By this means the fine packed fur is straightened and brought out, to constitute the hairy surface of the pelt, and the master hairs covered, and an article of fur produced which has a fine ornamental face, and which, either in its natural state or dyed, is serviceable in the manufacture of dress goods, and for other purposes to which seal, beaver, and other skins have heretofore been applied, and for which buffalo-pelts, as heretofore treated, have never been applicable.

As the process of treating the pelts constitutes the subject of a separate application for letters patent, I do not here claim the same; but

I claim—

As a new article of manufacture, a dressed fur consisting of buffalo-pelt in which the master hairs are cut short and the fine hair combed out to constitute the fur surface, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

SAMUEL D. CASTLE.

Witnesses:

H. E. BOWSER.
AMOS FULLER.

172 United States Patent Office.

FRANÇOIS LAMBERT, of Ansonia, Connecticut.

*Improvement in Watch and Clock Pinions.*

Specification forming part of Letters Patent No. 217,291, dated July 8, 1879; application filed April 28, 1879.

To all whom it may concern:

Be it known that I, François Lambert, of Ansonia, in the county of New Haven and State of Connecticut, have invented a new and useful improvement in watch and clock pinions, of which the following is a specification.

Figure 1 is a longitudinal central section of my improved pinion. Fig. 2 is a cross-section thereof on the line *c c*, Fig. 1; Fig. 3, a cross-section thereof on line *k k*, Fig. 1.

(Here follows diagram marked p. 172*a*.)

Similar letters of reference indicate corresponding parts in all the figures.

This invention relates to a new construction of pinions and toothed wheels for clocks and watches.

My invention consists in constructing nearly the entire length of arbor with projecting ribs and intermediate grooves, so that every part thereof may serve as a pinion, (but the ends of the tooth arbor are formed into rounded gudgeons,) and in driving a collar or washer upon the toothed shaft, and in thereupon securing the toothed wheel to said collar, the teeth of the arbor cutting into the metal of the collar, holding it securely in place.

In the drawings, the letter A represents my improved arbor-pinion; B, the collar or washer placed thereon, and C the toothed wheel secured to the collar.

The arbor A is made of a bar of steel, shaped in cross-section to form ribs and grooves, as is proper for a watch or clock pinion, and as clearly shown in Figs. 2 and 3. The bar thus formed is cut into suitable lengths for the several arbors, and the gudgeons *a a* are then turned at the ends in suitable manner, so that the arbor can be properly hung in the frame. I prefer to make the arbor-pinion A of steel or other hard metal.

The collar B, which is usually made of brass or other comparatively soft metal, has an inner bore somewhat smaller in diameter than the outermost diameter of the arbor-pinion. The collar is best secured in place by simply driving it upon the arbor-pinion to the requisite distance, the teeth *b b* of the arbor-pinion cutting into the

No 191.
Cimiotte Co } p. 172a
v.
American Co.

F. LAMBERT.
Watch and Clock Pinions.

No. 217,291. Patented July 8, 1879.

Fig: 1

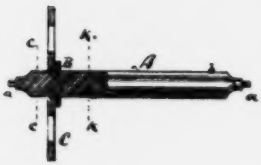



Fig: 2

Fig: 3

Witnesses:
John C. Tunbridge
Willy G. E. Schultz

Inventor:
François Lambert
by his attorney
A. v. Briesen

body of the collar and holding it in place, so that it cannot turn loose.

The wheel C is finally secured to the collar in the usual manner, either by forming dents *d d* in the collar or otherwise.

The wheels, being made of thin metal, would lose their form if driven directly upon the toothed arbors. The collar permits, moreover, the perfect centering of each wheel.

I claim—

1. The combination of the arbor-pinion A with the collar or wheel-carrying disk B, which is held fast by the teeth of the pinion and with the body of the wheel C, which is fastened to the collar, substantially as herein shown and described.

2. The method herein described of securing toothed clock or watch wheels to their arbors and pinions by driving the carrying-collars over the teeth of the pinions and securing the wheels to the faces of said collars, substantially as herein shown and described.

FRANÇOIS LAMBERT.

Witnesses:

T. B. MOSHER.
W. H. C. SMITH.

173 United States Patent Office.

GUSTAV CIMIOTTI and FERDINAND F. CIMIOTTI, of New York, N. Y.

*Machine for Clipping Seal and Other Skins.*

Specification forming part of Letters Patent No. 240,007, dated April 12, 1881. Application filed October 20, 1880. (Model.)

To all whom it may concern:

Be it known that we, Gustav Cimiotti and Ferdinand Florian Cimiotti, both of the city, county and State of New York, have invented certain new and useful improvements in machines for clipping seal and other skins, of which the following is a specification.

Every seal-skin has, besides the soft fine hair or wool which forms the main attaction of the skin, long glossy hair or bristles—the so-called "water-hair"—the greater part of which is removed in dressing the skin. The shorter bristles, however, remain in the skin, and have to be removed by clipping or plucking. This has heretofore been accomplished by hand, the operator blowing the fine hair back so as to expose the long and stiff bristles, which are then either cut off short or pulled out by pinchers. This method of clipping or plucking the thick hair is slow, tedious, and expensive, and requires skilled hands.

The object of this invention is to furnish a machine by which the thick water-hair or bristles of the fur can be removed in a rapid, uniform, and reliable manner; and the invention consists of a knife-edged bar, over which the seal-skin is tightly stretched and intermittently fed by means of winding and unwinding rollers. The narrow portion or strip of skin directly over the knife-edge is exposed to a vertical blast of air from a bellows or blower and retained at both sides of the knife-edge by laterally-movable guard-combs. The stiff bristles projecting through and above the combs are then clipped off by horizontal knives or shears arranged above the combs.

(Here follow diagrams marked pp. 173*a* and 173*b*.)

In the accompanying drawings, which fully illustrate our invention figures 1 and 2 represent vertical transverse sections of our improved machine for clipping or plucking seal-skins, shown respectively before and during the clipping action. Fig. 3 is a sectional front elevation; Fig. 4, a top view of the same; and Figs. 5 and 6 are detail top views, respectively, of one of the retaining guard-combs and of the lower clipping-knife.

Similar letters of reference indicate corresponding parts.

A represents the supporting-frame of our improved machine for

No 192.
Cimiotti Co } p. 173a
American Co.

(Model.) 2 Sheets—Sheet 1.

G. & F. F. CIMIOTTI.

Machine for Clipping Seal and other Skins.

No. 240,007. Patented April 12, 1881.

Fig: 1.

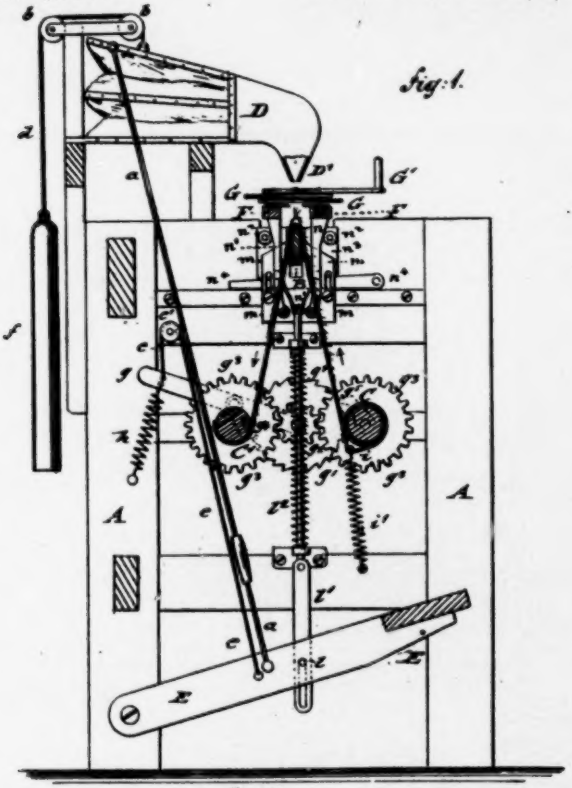
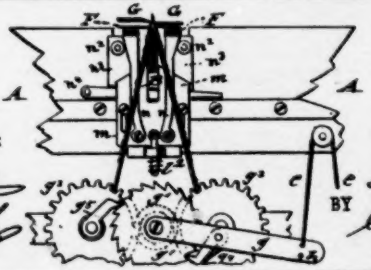


Fig: 2.



WITNESSES:

Carl Karp

Otto Rische

INVENTOR

Gustav Cimiotti

Ferdinand F. Cimiotti

BY

Paul Goepel

ATTORNEY

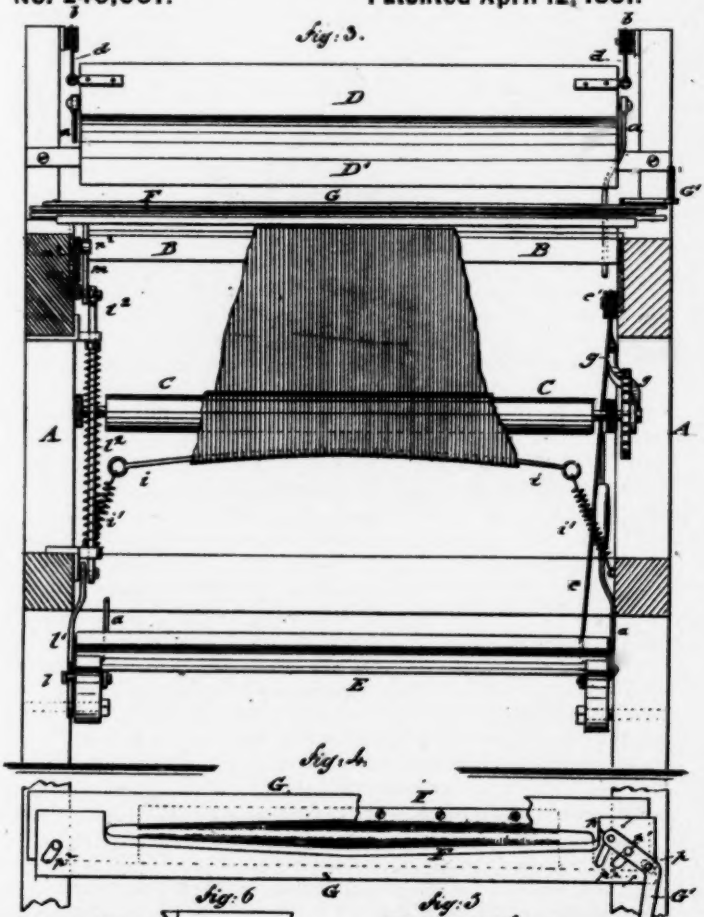
No 192
Cimiotti Co } p. 173 b
& American Co

Model.) 2 Sheets—Sheet 2.

G. & F. F. CIMIOTTI.

Machine for Clipping Seal and other Skins.

No. 240,007. Patented April 12, 1881.




WITNESSES:
Carl Kass
Otto Risch

INVENTOR
Gustav Cimiotti
Ferdinand F. Cimiotti
BY Paul Goepel
ATTORNEY

clipping seal-skins, at the middle portion of which is arranged a fixed knife-edged bar, B, that extends transversely from one side support of the frame to the other. Over this bar B the seal-skin to be clipped is tightly stretched by being wound upon a roller, C, at one side of the knife-edged bar and upon a second roller, C′, at the other side of the same. The skin is connected to the rollers C C′ by means of bands attached to the ends of the skin, which bands are of such length that every part of the skin can pass over the knife-edge. By a suitable pawl-and-ratchet mechanism the rollers C and C′ are intermittently operated so as to move the skin forward over the knife-edge at the proper time.

Above the knife-edged bar, and of equal width with the same, is arranged a bellows or other air-forcing apparatus, D, which is supported on frame A and provided with a nozzle, D′, the narrow discharge-orifice of which is vertically above the knife-edged bar B. The bellows D is operated by means of a treadle, E, which is connected by cords or pivot-rods *a* to the upper movable portion of the bellows, and by weights *f*, which are hung to cords *d*, passing over pulleys *b b* at the top of frame A. The weights *f* open the bellows as soon as the treadle is released by the foot.

The treadle E is also connected by a cord, *e*, passing over a pulley, *e′*, to the rear end of a slotted lever-arm, *g*, which turns loosely on the shaft of a ratchet-wheel, $g'$, and pinion $g^2$, which latter intermeshes with gear-wheels $g^3$ at the ends of the shafts of the winding and unwinding rollers C C′. The short shaft of the ratchet-wheel $g'$ and pinion $g^2$ is supported in suitable bearings of frame A. A spring pawl, $g^4$, is pivoted to the lever *g* and a check-pawl, $g^5$, to the shaft of the roller C. The pawl $g^4$ passes over the teeth of the ratchet-wheel on depressing the treadle E, but engages the same on the return motion of the lever by the action of a spiral spring, *h*, which is attached to the rear end of the lever *g* and frame A. The return motion of the lever *g*, imparted by spring *h*, causes the pawl $g^4$ to engage the ratchet-wheel $g'$, so as to turn the same and pinion $g^2$, which latter turns the gear-wheels $g^3$ in opposite direction, so as to produce the unwinding of the skin from the front roller, C, and the winding up of the same on the rear roller, C′. The seal-
173½ skin stretched over the knife-edged bar is thereby moved forward for a short distance. Before the skin passes over the knife-edged bar B it passes over a transverse tension-rod, *i*, the ends of which are connected by springs *i′* to the side standards of frame A, as shown in Figs. 1 and 3. This tension-rod prevents the too tight stretching of the skin and facilitates the motion of the same over the knife-edge.

The treadle E is furthermore connected, preferably at both ends, by fixed and headed pins, *l*, to slotted pivot-links, *l′*, which are applied to the lower ends of vertically-guided and spring-cushioned connecting-rods $l^2$. These are applied at the upper ends to guide-plates *m*, which are guided by parallel slots on fixed pins of frame

A, as shown in Figs. 1 and 2. The guide-plates $m$ are centrally recessed at their upper ends for the bar B.

To the lower parts of the guide-plates $m$ are pivoted the shanks $n$ of horizontal guard-combs F, which are arranged above and symmetrically to the knife-edged bar B, and pressed outwardly by a V-shaped spring, $n'$. The inclined rear sides of the shanks $n$ of the combs F' move, during the downward motion of the treadle, along anti-friction rollers $n^2$ of fixed side plates, $n^3$, of frame A, the joint action of the slotted guide-plates and rollers $n^2$ serving to close the combs over the portion of the skin which is at that moment above the knife-edge. The side plates, $n^3$, and rollers $n^2$ may be set somewhat higher or lower by means of wedge-keys $n^4$, so as to secure the exact position of the combs close to the narrow strip of skin, above the knife-edge. Above the guard-combs F are placed two horizontal clipping-knives, G, the inner cutting edges of which are arranged in the form of an obtuse-angled V, as shown in Fig. 4, and operated by a crank-handle, G', at one end, so as to exert a shear cut upon the bristles projecting above the combs. The joint motion of the knives G is obtained by action of the outer pins, $p$, of the crank G' upon the upper and lower knives on swinging the crank around the intermediate fulcrum, $p^1$, as indicated by arrows in Fig. 4. Both knives are provided with inclined slots $p^2$, by which they are enabled to slide along the fulcrum $p'$. The upper knife is furthermore provided with a slot for the outer pin, $p$, which passes through the same to the lower knife, as shown clearly in Figs. 4 and 5.

By depressing the treadle a strong current of air is thrown by the bellows upon the narrow strip of skin which is at the time above the knife-edge, the current forcing the soft hair of the fur down and parting it at both sides of the knife-edge, so as to return the soft hair or wool and protect it against injury in clipping or removing the bristles, which project through the teeth of the combs.

By a motion of the operating-crank of the knives, the projecting bristles are clipped off close to the skin, or they may be plucked by pinchers, or removed by other devices in case no knives are desired to be used. The knives, however, are preferable, as they accomplish the clipping operation across the whole width of the skin at one operation, and at that portion which is above the knife-edged bar. On the release of the treadle the bellows opens, the combs are raised and moved away from each other, and the skin is fed forward for a short distance over the knife-edge bar, so as to expose an adjoining strip to the action of the current and to the clipping knives, as described. The clipping operation is repeated until the entire skin is freed of the stiff water-hair or bristles, which is in this manner accomplished at a considerable saving of time and expense as compared with the clipping or plucking of the skin by hand.

Having thus described our invention, we claim as new and desire to secure by letters patent—

1. In a machine for clipping seal-skins, the combination of a knife-edged bar and means for stretching and intermittently feeding

the skin over the bar with an air-forcing apparatus arranged above the knife-edged bar, substantially as specified.

2. In a machine for clipping seal-skins, the combination of a knife-edged bar and means for stretching and feeding the skin over the same with oscillating guard-combs arranged symmetrically at both sides of the bar, substantially as set forth.

3. In a machine for clipping seal-skins, the combination of the knife-edged bar and means for stretching and feeding the skin over the bar with an air-forcing apparatus above the bar and with oscillating guard-combs arranged at both sides of the bar, substantially as set forth.

4. In a machine for clipping seal-skins, the combination of a knife-edged bar and means for stretching and feeding the skin over the bar with an air-forcing apparatus above the bar, with oscillating guard-combs, and with clipping-knives above the same, substantially as specified.

5. The method herein described of plucking seal-skins, consisting in first stretching the skin tightly over a knife-edged support, then forcing the soft hair back by a strong air-current, next retaining and protecting the soft hair by suitable guard devices, and finally clipping or plucking the stiff projecting hair or bristles, all substantially as specified.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 6th day of October, 1880.

GUSTAV CIMIOTTI.
FERDINAND FLORIAN CIMIOTTI.

Witnesses:

PAUL GOEPEL.
CARL KARP.

174 United States Patent Office.

OTTO SIMONSON and WILLIAM SCHOTT, of New York, N. Y.

## *Fur-clipping Machine.*

Specification forming part of Letters Patent No. 306,185, dated October 7, 1884. Application filed January 31, 1884. (No model.)

To all whom it may concern:

Be it known that we, Otto Simonson and William Schott, citizens of the United States of North America, and residents of the city, county, and State of New York, have invented a new and useful improvement in fur-clipping machines, of which the following is a specification.

This invention relates to devices for the removal, by clipping, of coarse or water hairs from seal and other skins, and its object is to provide a machine whereby the work may be done with greater ease and celerity, and with more uniformity than by other machines in use. Some fur-clipping machines are constructed with shears for clipping the hairs, the fur or soft hairs being blown aside by intermittent air-blasts, and so held by combs while the shears operate. The shears, however, closing gradually from pivot to point along the line of hairs presented, tend to push and bend the said hairs aside and downward in advance of the closing point of the cutting-edges, so that the hairs are not so closely or cleanly cut from the skin as is desirable. Other fur-clipping machines are constructed with rotary cutters mounted on a carriage which is designed to be reciprocated to and fro from one end of the machine-frame to the other over the skin, the cutters operating on the hairs progressively as the carriage moves. In machines of this construction, however, the cutting of a row of hairs occupies considerable time, and more power is required for the reciprocation of the carriage and cutters than for the operation of shears.

Our invention comprises an improved device for rapidly clipping the hairs, and in combination therewith a device for delivering a constant and regular air-blast; and, further, comprises an adjustable straining-bar and frame for supporting the skins under the action of the cutters or knives, all of which will be hereinafter fully set forth.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

(Here follow diagrams marked pp. 174 *a*, *b*, *c* & *d*.)

No. 192.
Cimiotti C. } p. 174 a
American Co. }

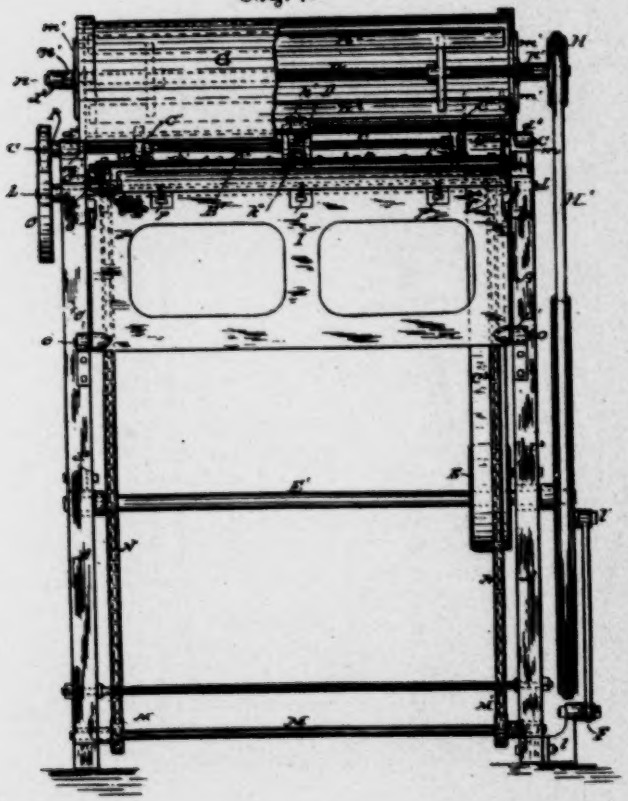
(No Model.) 4 Sheets—Sheet

O. SIMONSON & W. SCHOTT.

FUR CLIPPING MACHINE.

No. 306,185. Patented Oct. 7, 1884.

Fig. 1.



WITNESSES:
H. Ruddick
John J. Bordman

INVENTOR
Otto Simonson,
William Schott.
BY
Inst. I. Storer
ATTORNEY

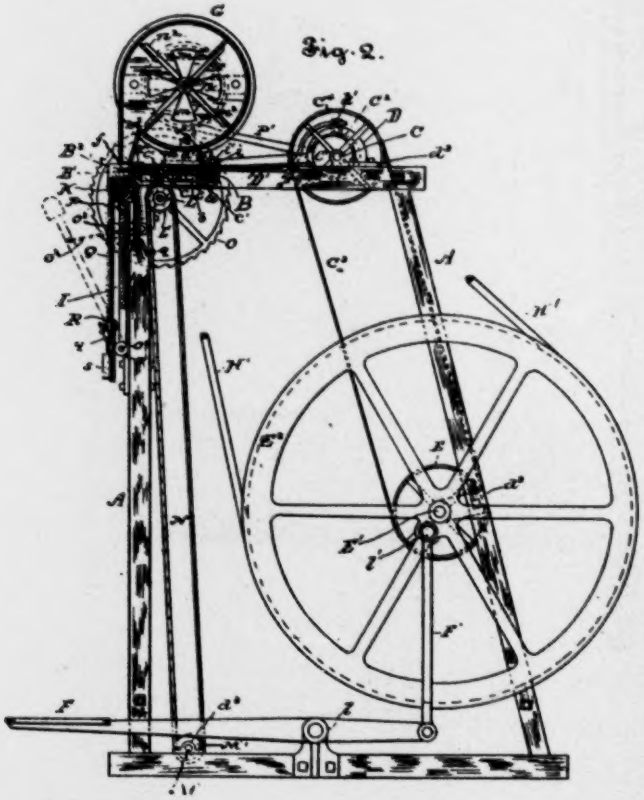
No 192
Cimiotti Co
v
American Co } p. 174 b

(No Model.) 4 Sheets—Sheet 2.

O. SIMONSON & W. SCHOTT.

FUR CLIPPING MACHINE.

No. 306,185. Patented Oct. 7, 1884.

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ATTORNEY

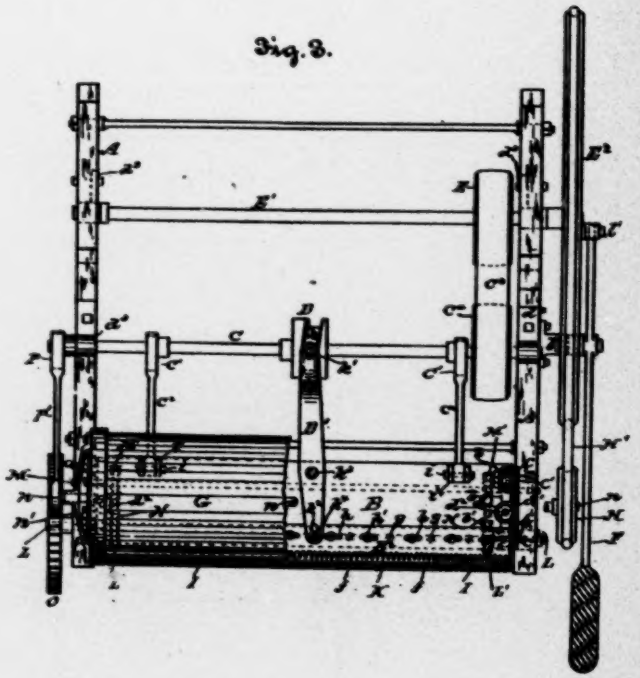
(No Model.) 4 Sheets—Sheet 3.

# O. SIMONSON & W. SCHOTT.

## FUR CLIPPING MACHINE.

No. 306,185. Patented Oct. 7, 1884.

Fig. 3.



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No. 192
Cimiotte Co
American Co. } p. 174

(No Model.) 4 Sheets—Sheet 4.

# O. SIMONSON & W. SCHOTT.

## FUR CLIPPING MACHINE.

No. 306,185. Patented Oct. 7, 1884.

Fig. 4.

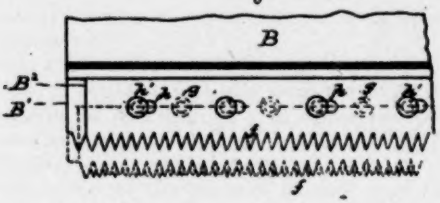



Fig. 5.

Fig. 6.

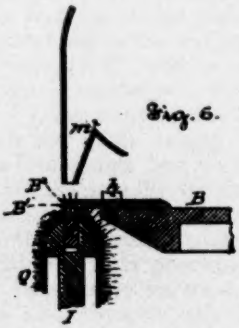



Fig. 7.

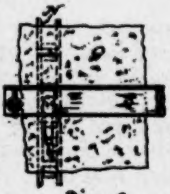



Fig. 8.

WITNESSES:
H Ruddick
John J. Bordman.

INVENTOR
Otto Simonson.
William Schott.
BY
Isaac S. Storer.
ATTORNEY

Figure 1 is a front elevation of our machine, with parts broken away to exhibit other parts. Fig. 2 is a partly sectional side elevation of the same. Fig. 3 is a plan of the same, with parts broken away to exhibit other parts. Fig. 4 is an enlarged plan of cutter-bars and supporting-plate, showing in dotted lines the position of the bars when the upper bar is moving laterally for clipping. Fig. 5 is an enlarged sectional elevation showing the straining-bar adjusted in position. Fig. 6 is an enlarged sectional elevation of certain details of the mechanism. Fig. 7 is an enlarged, partly sectional elevation, showing the clamp for and the method of securing the edge of a skin to the chains. Fig. 8 is an enlarged front elevation of the same.

A represents the frame of the machine, on the inner faces of the upper horizontal timbers of which are secured, opposite each other, iron angle-plates *a a*.

B represents a plate that supports the clipping or cutter bars B′ B². This plate is made sufficiently strong and rigid to prevent said bars from sagging or bending, and is made of sufficient width for the convenient attachment to it of the mechanism whereby it and the clipper-bars are moved and operated.

On the under side of the plate B, at each end thereof, is formed a strengthening-rib *b*, having two sockets, *b′ b′*, in each of which an anti-friction roller, *c*, is held on a horizontal stud, *c′*, and in a socket, *d*, in each rib *b* is held on a vertical stud, *d′*, an anti-friction roller, *d²*. The rollers *c c* rest on the horizontal portions of the plates *a a*, while the rollers *d²* bear against the vertical faces thereof, so that the supporting-plate B and the clipper-bars B′ B² may be moved back and forth with a minimum of frictional resistance. The clipper-bars B′ B² are provided with teeth *f f*, for clipping the coarse hairs. The lower clipper-bar, B′, extends the whole length or distance between the sides of the machine-frame and has no lateral movement, while the upper clipper-bar, B², is made shorter than the bar B′, so that it can be laterally reciprocated for the clipping operation. The bar B′ is rigidly held to the supporting-plate B by countersunk screws *g g*, and the bar B², which is provided with longitudinally-slotted holes *h h*, is held in place by screws or bolts *h′ h′*, that pass down through said holes and through the bar B′ into the plate B, the said slotted bolt-holes *h h* permitting the required lateral movements of the upper cutter-bar, B². 174¼

Rearward of the bars B′ B² and journaled in boxes *d³ d³* fixed on the top of the machine-frame is a horizontal shaft C, secured on which are two or more eccentrics, C′ C′, whose respective straps C² extend forward and have their eyed ends hinged by bolts *i i* in lugs *i′ i′*, that are rigidly secured on the rear edge of the supporting-plate B; and on about the center of the shaft C is secured a cam D, having a peripheral irregular spiral groove, *k*. Connection is made between this cam D and the plate B and bars B¹ B² by a lever D′, which is constructed with a depending stud, *k′*, in one end, and a slot, *k²*, in the opposite end. The said lever D′ is pivoted to

the supporting-plate B near the rear edge thereof by a pivot $k^3$. Its stud $k'$ is engaged in the groove of the cam D, and a stud, $k^4$, projecting upward from the upper cutter-bar, $B^2$, engages in the slot $k^2$; hence when the shaft C is revolved the plate B and cutter-bars B′ $B^2$ are, at the first half-revolution thereof, and by the throw of the eccentrics C′ C′, moved forward with the teeth of the cutter-bars in the same vertical planes, with the teeth open. The extent of this forward movement is about half an inch to the point where said teeth *f f* engage the hairs which are to be clipped. Then the cam D, operating through the lever D′, throws the upper bar, $B^2$, to the right (looking from the rear of the machine forward) a distance of about one-eighth of an inch, thus closing the upper edges of the upper teeth over those of the lower teeth, whereby the hairs engaged between them will be clipped. On the next half-revolution of the shaft C by the consequent reverse motion of the eccentrics C′ C′ and cam D, the cutter-bar teeth begin to open—that is, the upper cutter-bar, $B^2$, begins to move to the left, and, simultaneously, the two bars B′ $B^2$ and plate B begin to be drawn rearward to the same extent they had before been moved forward, this reverse lateral motion of the cutter-bar $B^2$ and the rearward motions of the plate B and bars B′ $B^2$ being completed at one and the same time, and in this manner the cutter-bars continue to be operated during the working of the machine.

The teeth *f f* are made quite narrow, so as to taper but slightly from gum to point, that they may, as nearly as possible, engage the hairs to be cut at right angles, and so clip them without bending them down or aside, and consequently clip them closer or shorter than is commonly done by other machines.

It will be seen that as the lower cutter-bar, B′, is moved forward it operates, as do the combs in other machines of this class, to hold the fine hairs or fur down away from the cutting-teeth.

On the shaft C is a pulley, $C^4$, from which a belt, $C^3$, runs over a pulley, E, that is secured on the main driving-shaft E′, which shaft E′ is suitably journaled on the frame A, and also on said shaft E′ is a fly-wheel, $E^2$, to which motion is given by means of power applied to a treadle, F, pivoted in boxes *l* through pitman F′ and wrist pin *l′*.

We use, in combination with the cutter-bars a continuous air-blast, to blow the soft hairs or fur away or aside from the water-hairs, and the blower designed for this purpose is of peculiar construction, and is arranged above the said cutter-bars. Its drum or cylinder G, which is fixed on standards *m*, projecting upward from the frame A, has in each end a central opening provided with register-valve *m′*, to regulate the ingress of air, and its egress-nozzle $m^2$ is made gradually tapering or narrowing flatwise to its mouth, as shown, for the purpose of somewhat retarding the blast, and thereby equalizing its pressure at the point of delivery throughout the length of the said drum, which extends from one side to the other of the frame A. The blower fan-shaft *n*, which is journaled in brackets *n′*, secured on the ends of the drum G, extends centrally

through the said drum and carries spiders provided with fans $n^2$, as shown. On the outer end of this shaft $n$ is fixed a pulley, H, to which power is transmitted from the fly-wheel $E^2$ by a belt H'.

That part of our improved machine over which the skins are to be stretched or strained while being clipped consists in part of a frame, I, provided with pintles $o$ at each lower corner, by which it is held in lugs $o'$, fixed on the frame A in such a manner that its top can be turned forward and downward, as shown in dotted lines, Fig. 2, for the ready and easy adjustment of a skin over it. By this device much time and trouble are saved in arranging the skins in position for clipping, and in afterward removing them. A chain or other suitable device, $o^2$, attached at one end to the frame A and at the other to the straining-frame I, prevents the latter from being turned down too far, and latches $o^3$, fixed on the frame A, are designed to catch and hold the frame I in an upright position during the clipping operation. A further improvement is in making the bar K, over which the skins are stretched or strained, vertically adjustable, and for this purpose the upper edge of the frame I is provided with a longitudinal groove in which the bar K is set and supported by set-screws $p$ $p$, so that on turning said screws the bar K can be slightly raised or lowered as the thickness of the skin may demand, and be held rigidly at the desired elevation.

Beneath the plate B, and extending across the frame A on which it is suitably journaled, is a horizontal shaft, L, having fixed on it near each end sprocket-wheels L' L'; and journaled on the lower part of the frame A is a shaft, M, provided with two sprocket-wheels, M' M'. Chains N N, for drawing the skins over the bar K, are passed about the wheels L' M'.

On the outer end of the shaft L is a ratchet-wheel, O, and
174½ on the corresponding end of the shaft C is an eccentric, P, whose strap P', serves as a pawl and engages with the ratchet-wheel O, as shown, to give it motion; hence as the shaft C revolves continuously the shaft L is made to revolve and the chains N N to move intermittently.

When the machine is to be operated, a skin (represented at Q, Fig. 2,) is adjusted on the bar K, and a clamp, R, provided with hooks $q$, is fastened along one edge thereof, while weights $s$ are secured on the opposite edge of said skin to keep it at a proper tension. Then the clamp hooks $q$ are engaged in links of the chains N N. Then, when the machine is put in operation, the cutter bars being drawn back to permit the feeding of the skin over the straining-bar K, the skin is intermittently drawn over the said bar K, the air-blast continually blowing aside the soft fur that is presented along the line of the said bar, leaving the stiff hairs erect, and at each intermittence of the motion of the said skin the cutter-bars B' $B^2$ complete their forward motion and their teeth engage the hairs that are to be clipped, and at the completion of this forward motion the upper bar, $B^2$, moves to the right, whereby all the stiff or water hairs along the line of the upper edge of the bar K are simultaneously cut off by and between the upper and lower teeth $f$ $f$.

In the devices for transmitting motion to the cutter-bars, to the fan, and to the skin that is to be operated upon, we do not confine ourselves to the precise construction herein shown and described, as it is obvious that other devices for these purposes may be employed without departing from the spirit of our invention. The straining-frame may also easily be made vertically adjustable instead of the straining-bar being so arranged.

We are aware of the patents of Rasmus, of Dutton, and of Cimiotte for fur-clipping machines, of Coldwell for machine for clipping hats, furs, &c., and of Armstrong for machine for cutting up pelts, and we do not claim their devices or methods; but

Having thus described our invention, we claim as new, and desire to secure by letters patent—

1. A fur-clipping machine comprising the following elements: a cutter-bar adapted to be reciprocated forward and backward, a cutter-bar adapted to be reciprocated forward, backward, and laterally, a device adapted to give a continuous air-blast, an adjustable straining-frame, an adjustable straining-bar, and suitable mechanisms for feeding and straining the skin or fur, all constructed and arranged substantially as set forth.

2. In a fur-clipping machine, as a means for removing the water-hairs from skins or furs, toothed cutter-bars adapted to be reciprocated, substantially as set forth.

3. In a fur-clipping machine, the combination, with the machine-frame, the straining-frame, and the fur-clipping mechanism arranged above the straining-frame, of a blower fixed on the machine-frame, and adapted and arranged to apply a continuous air-blast upon the fur, to blow and hold aside the soft fur when the machine is in operation, substantially as herein shown and described.

4. In a fur-clipping machine, a straining-frame adapted and arranged to be swung downward, substantially as and for the purpose described.

5. In a fur-clipping machine, the combination, with devices for clipping the coarse fur or hairs, and with a straining-frame incapable of vertical adjustment, of a straining-bar fixed on and above the said straining-frame and devices for vertically adjusting the said bar, substantially as herein shown and described.

6. In a fur-clipping machine, means, substantially as herein shown and described, for straining a fur or skin over the straining-bar, consisting of movable endless chains N N, clamp R, hooks *q*, and weights *s*, all arranged and operating as set forth.

In testimony that we claim the foregoing as our invention we have signed our names, in presence of two witnesses, this 18th day of January, 1884.

OTTO SIMONSON.
WILLIAM SCHOTT.

Witnesses:
JACOB J. STORER.
JOHN J. BORDMAN.

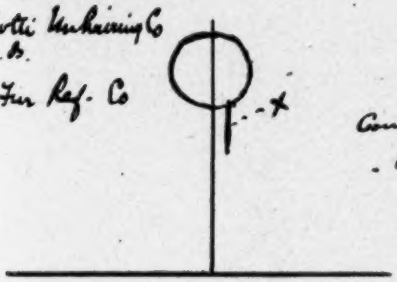
(Here follows diagram marked p. 175.)

No 192
Ciniotti Co
v.
American Co. } p 175

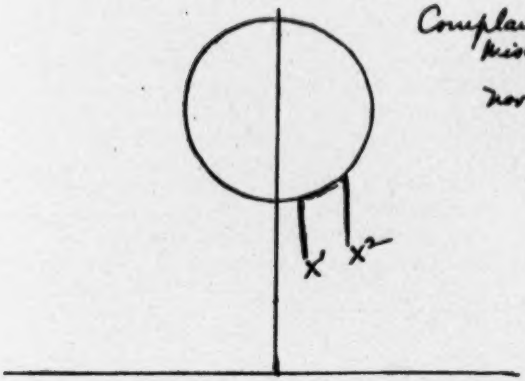
U.S. Circuit Ct.
Distr of New Jersey
In Equity

Ciniotti Unhairing Co
Etal. B.

Am. Fur Ref. Co




Complaments' Exhibit
Mischke Drawing
No. 1.
Nov 12. 1901.




Complaments Exhibit
Mischke Drawing
No 2
Nov 12. 1901.

No. 192
Cimiotti Co
American Co. } p. 176 a

(No Model.) 2 Sheets—Sheet 1.

# H. A. HOUSE & S. D. CASTLE.

## Treating Pelts.

No. 233,415. Patented Oct. 19, 1880.

Fig. 1

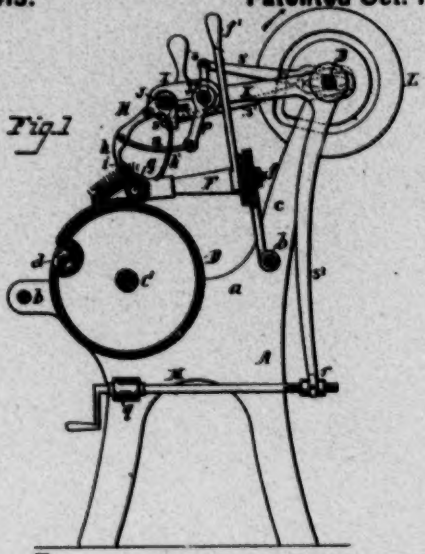
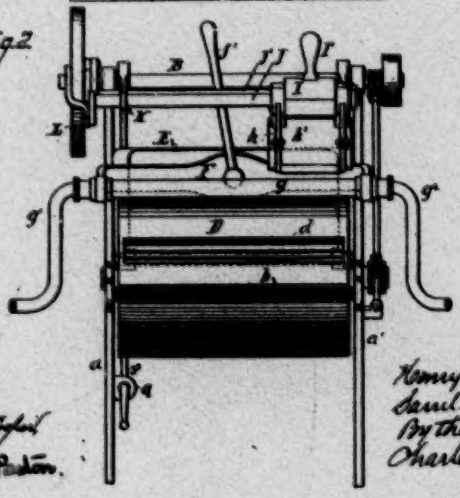


Fig. 2



Attest.
Courtney A. Cogfoil
William Paxton.

Henry A. House,
Saml. D. Castle,
By their attorney
Charles E. Foster.

(No Model.) 2 Sheets—Sheet 2.

# H. A. HOUSE & S. D. CASTLE.

## Treating Pelts.

No. 233,415. Patented Oct. 19, 1880.

Fig. 3

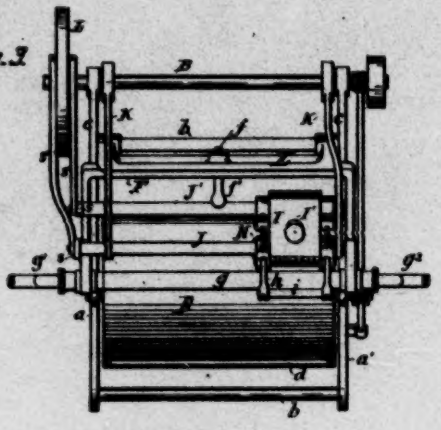


Fig. 4.

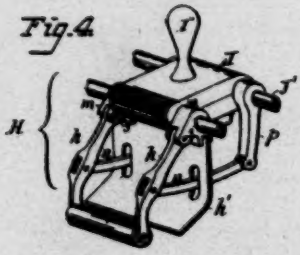


Fig. 5.

Fig. 6.

Fig. 7.

Witnesses:
William Paston.

Inventors:
Henry A. House.
Saml. D. Castle.
By their attorney,
Charles E. Foster

176 United States Patent Office.

HENRY A. HOUSE and SAMUEL D. CASTLE, of Bridgeport, Conn.

## *Treating Pelts.*

Specification forming part of Letters Patent No. 233,415, dated October 19, 1880. Application filed September 14, 1880. (No model.)

To all whom it may concern:

Be it known that we, Henry A. House and Sam. D. Castle, of Bridgeport, Fairfield county, Connecticut, have invented an improvement in treating pelts, of which the following is a specification.

The object of our invention is to extract the master-hairs from pelts without the tedious and expensive manipulation heretofore requisite for this purpose; and this object we effect by the means hereinafter set forth, and illustrated in the accompanying drawings, in which—

(Here follow diagrams marked pp. 176 *a* & *b*.)

Figure 1 is a transverse sectional elevation of a machine embodying our invention; Fig. 2, a front elevation; Fig. 3, a plan view; Fig. 4, a detached perspective view of the carrier and picker, and Figs. 5, 6, and 7 views illustrating the operations upon the pelts.

A represents the frame, of any suitable form, to support the mechanism, which may be variously constructed without departing from the essential features of our invention. As shown, the frame consists of two side pieces, *a a'*, and cross-bars *b*, the side pieces having upwardly-projecting standards *c*, in which turns the driving-shaft B.

On a lower shaft, C, turns a cylindrical carrier or table, D, which is rotated by means of a worm-gear driven from the shaft B, and in the periphery of the carrier is a slot, *d*, containing a clamping-bar, *e*, by means of which the edges of a pelt, X, may be secured, with the fur downward, to the carrier, as shown in Fig. 1.

At the rear of the carrier, to one of the cross-bars *b*, is hung a frame, E, to which, by a central screw-bolt, *f*, is pivoted, so as to swing freely, a yoke-frame, F, carrying a hollow bar or tube, *g*, through which a current of steam or hot air may be passed by means of flexible pipes *g' g²*. A handle, *f'*, connected to the bolt *f*, serves as a means of tightening and loosening the latter to facilitate the adjustment of the frame F, as may be necessary, according to the shape of the pelt operated upon.

Above the bar *g* is arranged a mechanical picker, of any suitable construction, which is connected with such adjusting and operating devices as will insure the griping by the picker of the long master-

hairs *x*, that project beyond the finer body of fur *y*, Fig. 5, and the extracting of such hairs by pulling the same out by their roots.

In the drawings, we have illustrated the picker H, consisting of two jaws, *h h'*, hung to a carriage, I, sliding freely upon rock-shafts J J', carried by a frame, K, swinging upon the shaft B. The jaw *h'* consists of a bent blade secured to a bracket, *m*, sliding on but rocking with the shaft J; and the jaw *h* consists of arms pivoted at 3 to the brackets *m*, and carrying a cross-bar, *i*, having a rubber or elastic covering.

The jaw *h* is connected, by rods *n*, to arms *p* of the rock-shaft J', the arms *p* sliding on the shaft with the carrier I, but rocking with the shaft. The shafts J J' terminate in cranks *s s*, connected to rods *s' s'*, slotted and sliding upon the shaft B by the action of a wheel, L, having cam-grooves on its opposite faces receiving studs on the said rods.

The frame K may be adjusted to bring the picker to and from the pelt by means of a screw-shaft, M, turning in a stud, *q*, of the side frame, *a*, and in an oscillating nut, *r*, carried by an arm, $s^3$, extending from the said frame K.

The pelt, after being clamped to the carrier D, is passed round the tube *g*, so as to present the hair face upward to the picker H, the jaws of which are so vibrated that the bar *i* will first bend the master-hairs, as shown in Fig. 6, toward the jaw *h'*. The latter will then be brought with its edge firmly against the bar *i*, Fig. 7, and both will then be rocked in the direction of the arrow, Fig. 7, thereby pulling the hairs thus griped between the jaws by their roots from the skin. As these operations are rapidly repeated the carrier D is revolved so as to bring different portions of the pelt successively under the action of the picker, which thus withdraws the master-hairs from the length of the pelt for a distance proportioned to the width of the picker. The carriage I may then be adjusted by means of a handle, I', upon the shafts J J', so as to bring the picker above another portion of the pelt, the carrier D being turned back, so as to start the operation from the same edge of the pelt, as before. By successive adjustments of the carrier D and carriage I every
176½ portion of the pelt is speedily acted upon, and by elevating or depressing the frame K the picker is adjusted to seize the master-hairs close to the fur without griping the latter, and by tilting the frame F the picker is maintained at the same relative distance from the fur as it approaches the thinner edges of the pelt.

We have ascertained that by heating the pelt by passing it over a heated bar or otherwise, the roots of the master-hairs are so affected that the will pass easily from the skin without any tearing action likely to result in the extraction of the fur.

We do not confine ourselves to the within-described form of picker or mode of operating the same. Any suitable character of jaws may be employed, and the picker may be reciprocated vertically so as to seize and withdraw the master-hairs. The pelt-carrier may also con-

sist of a flat reciprocating table, heated, if necessary, and traveling laterally as well as back and forward.

We propose, to facilitate manipulating the pelt, to provide the machine with one or more treadles arranged so that the operations of the machine may be arrested or started and the frame F rocked by the action of the foot. Without confining ourselves, therefore, to the precise construction and arrangement shown,

We claim—

1. The combination of a carrier adapted to hold and carry a pelt, and a picker provided with jaws and operating mechanism, whereby the jaws are caused to gripe and withdraw the master-hairs, substantially as set forth.

2. The combination of a picker constructed to operate as set forth, and a heated tube or case for supporting the pelt, substantially as set forth.

3. The combination of a pelt-carrier, picker, and bar *g*, adjustable below the picker, substantially as set forth.

4. The combination of the carrier, picker, swinging frame E, yoke-frame F, hollow bar *g*, and device for adjusting the frame F, substantially as set forth.

5. The combination of the rock-bars J J′, brackets *m*, blade *h*′, bar *i*, connected to arms pivoted to the brackets *m*, and rods *n*, connected to arms *p* of the shaft J′, substantially as specified.

6. The combination of the picker with a carriage, I, supporting the same movably upon the jaw-operating shafts, substantially as set forth.

7. The combination, with the carrier and picker, of appliances for setting the same at different degrees apart, substantially as set forth.

8. The mode described of removing master-hairs from pelts, the same consisting in first heating the pelt adjacent to the roots of the master-hairs and then applying force to withdraw the latter, as specified.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

HENRY A. HOUSE.
SAMUEL D. CASTLE.

Witnesses:

WILLIAM HAMILTON.
ALFRED B. BEERS.

177 United States Patent Office.

DAVID MUELLER, of New York, N. Y., assignor of one-half to David Konigsberg, of same place.

*Fur-plucking Machine.*

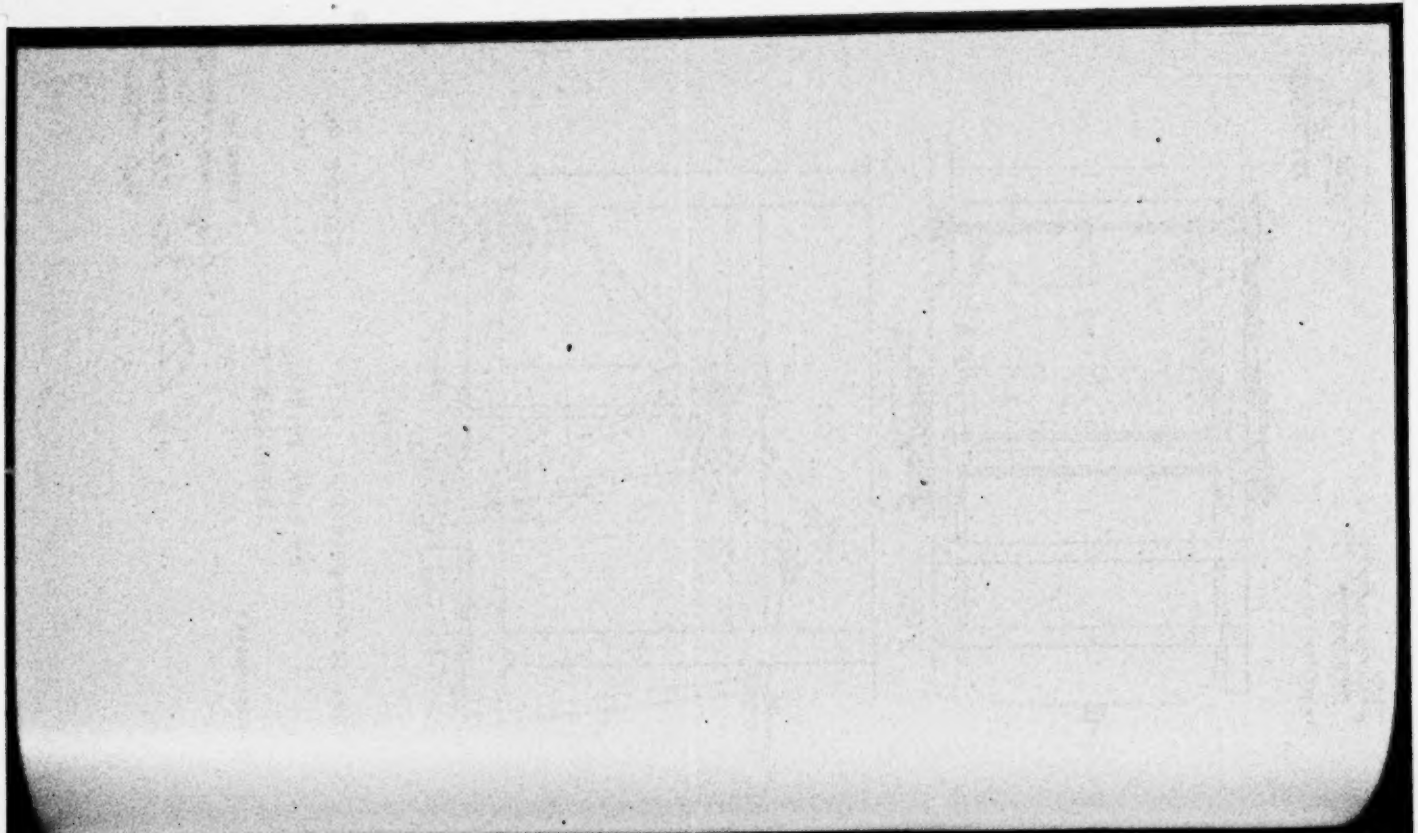
Specification forming part of Letters Patent No. 243,152, dated June 21, 1881. Application filed November 5, 1880. (No model.)

To all whom it may concern:

Be it known that I, David Mueller, of the city of New York, in the county and State of New York, have invented a certain new and useful improved fur-plucking machine, of which the following is a specification.

The treatment of a certain class of furs for removing the stiff hairs to make them soft and uniform in appearance, thereby better adapting them to be used in wearing-apparel, is what is known as "fur-picking," and such work is now performed by manual labor in the following manner: Small sections of the fur are blown against with sufficient force to separate the soft hair or wool from the stiff hairs, causing the wool to lie down and leaving the stiff hairs erect. The wool is now held down by a comb and the hairs removed by cutting them off as closely to the skin as the adjacent wool will permit, and so the whole skin is gone over, operating on small sections at a time. Consequently such work is very slow and tedious, besides the short stubbles of the hairs make the fur somewhat harsh, when the object of picking furs is to make them uniformly soft and pliable.

The object of this invention is to facilitate the operation of fur-picking by means of a machine constructed to operate automatically, and also to improve the class of work done by an improved method of removing the hairs from the fur, which improved method consists in plucking or pulling the hairs out of the skin, instead of cutting them off, so that no short stubble is left to detract from the natural softness of the wool of the fur. To accomplish this work automatically the fur is connected to feeding-tapes in the machine, which are operated, when power is applied to its driving-shaft, to draw the fur over a comparatively sharp edge of a table, constructed to spread the fur laterally as it moves over it. The nozzle of a bellows or other blowing device located opposite the edge of the table, and having a narrow opening extending the whole width of the table, directs a blast of air against the hairs and wool of the fur standing out over the edge of the table, thereby blowing the wool backward, leaving the hairs standing out. Gates then close down on the wool at both sides of the row of hairs, the edges of the gates having the hairs between them, but not touching them. The air-blast from the nozzle now ceases, and a pair of pulling-bars pivoted



No. 192
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American Co.

(No Model.) 3 Sheets—Sheet 1.

# D. MUELLER.
## Fur Plucking Machine.

No. 243,152. Patented June 21, 1881.

Fig. 1.

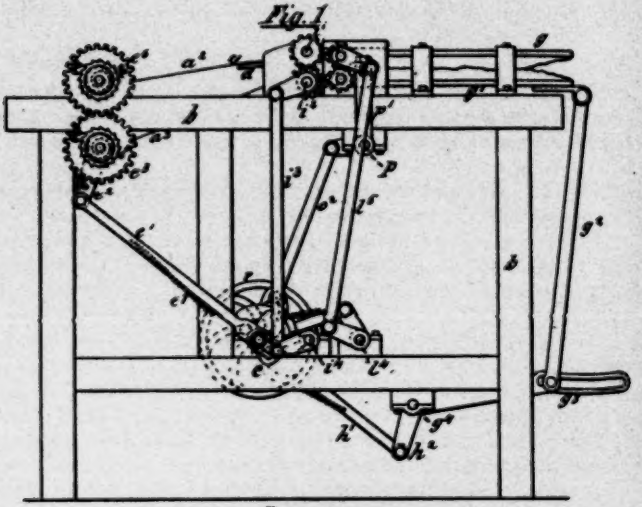
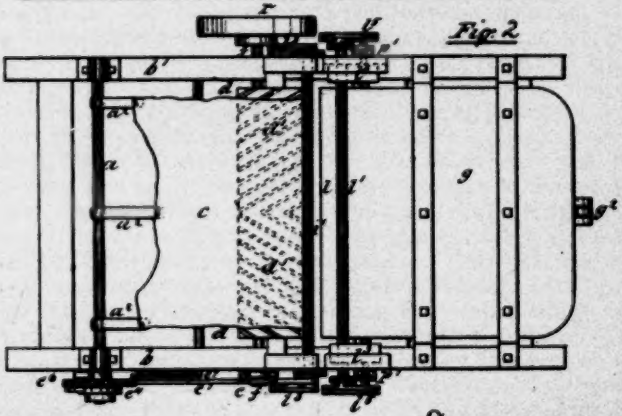


Fig. 2.



Witnesses.
H. L. Williams
John D. Sherlock

David Mueller,
Inventor.
per Alfred Sherlock
Atty.

No. 192
Cimiotte Co
v
Ameneca Co } p. 177b

(No Model.) 3 Sheets—Sheet 2.

# D. MUELLER.
## Fur Plucking Machine.

No. 243,152. Patented June 21, 1881.

Fig. 3

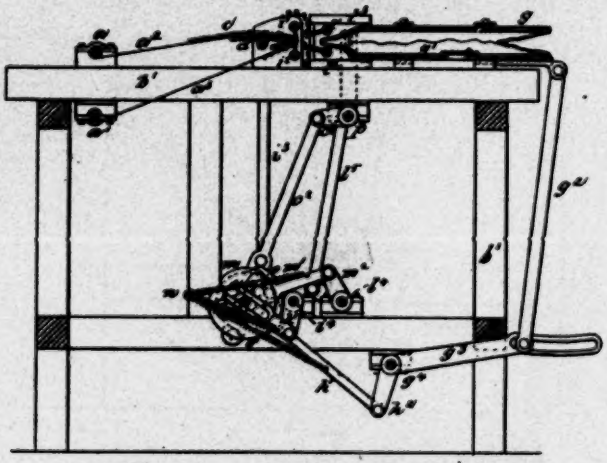


Fig. 4

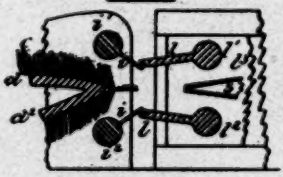
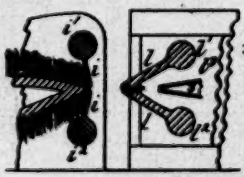


Fig. 5

Fig. 6

Fig. 7



Witnesses
H. D. Williams
John D. Sherlock

David Mueller
Inventor
per Alpertherlock

No 197.
~~Cimiotte Co.~~ } p. 177 C
American Co.

(No Model.) 3 Sheets—Sheet 3.

D. MUELLER.
Fur Plucking Machine.

No. 243,152. Patented June 21, 1881.

Fig. 8.

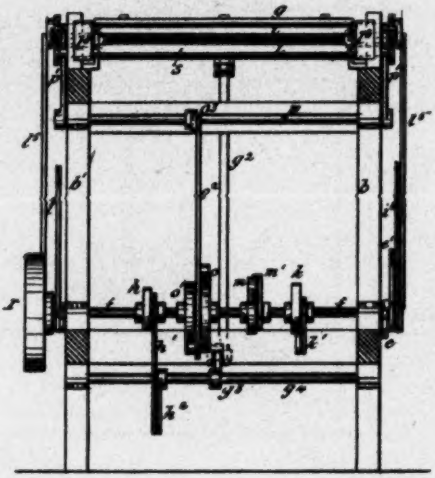


Fig. 10

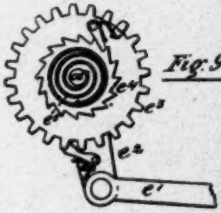


Fig. 9

Witnesses.
H. D. Williams
John D. Skedlock

David Mueller.
Inventor
per Alfred Skedlock

in sliding blocks move up in close proximity to the gates, so that their row of hairs is between their edges. They then close down on the hairs, griping the hair firmly between rubber strips and a grooved metal surface on their meeting edges. The sliding blocks now move back, carrying the griping-bars with them, and so pull out all the hairs exposed between the edges of the gates, the bars open, dropping the pulled hairs, and the gates open to allow the feed to act to bring a fresh strip of the fur over the edge of the table. The bellows are now again operated to blow back the wool, and the operation of the various parts repeated, and so on until the whole surface of the wool has been treated.

The various devices of the machine are actuated by suitable cams on the main shaft, and their construction and operation will be fully understood by the following description and the accompanying three sheets of drawings, forming part of this specification, and to which I will now refer, the different views of the drawings representing the parts of the machine, as follows:

(Here follow diagrams marked pp. 177 *a*, *b* & *c*.)

Figure 1, sheet 1, is a side elevation of my improved fur-plucking machine. Fig. 2, sheet 1, is a plan of the same. Fig. 3, sheet 2, is a vertical longitudinal elevation. Fig. 4, sheet 2, is an enlarged view of the principal operating devices of the machine, showing the gates and the hair-pulling griping-bars open and the wool of the fur blown back from the edge of the table. Fig. 5, sheet 2, is a similar view, showing the next operation—viz., the gates closed down on the wool of the fur. Fig. 6, sheet 2, is a similar view, showing the hair-pulling griping-bars moved forward and closed down on the hairs. Fig. 7, sheet 2, is also a similar view, showing the griping-bars moved back and the hairs pulled out of the hide thereby. Fig. 8, sheet 3, is a transverse sectional elevation, showing the disposition on the main shaft of the cams for operating the various de-
177¼ vices. Fig. 9, sheet 3, is an enlarged view of a part of the feeding device; and Fig. 10, sheet 3, is a longitudinal section of the same.

The feeding device is constructed and operated as follows:

Two shafts, *a* and *a'*, placed one above the other, are fitted to rotate in bearings at one end of the main frames *b b'*. They are slotted in three or more places, in which slots are placed the ends of tapes or bands $a^2$ and $a^3$, the other ends of these bands being secured by means of sewing or suitable clasps to two opposite edges of the fur *c*. The upper set of bands, $a^2$, are wound upon the shaft *a*, and so much of the fur as will allow its free edge to just reach the rounded edge of the table *d*, which extends across the whole width of the machine and is located about the middle of the side frames. The bands $a^3$, secured to the free end of the fur, pass around the rounded-edge table *d* and under the table to the shaft *a'*. Motion is intermittently applied to the shafts *a* and *a'* from the cam *e*, se-

cured to the main shaft $f$, through the medium of the rod $e'$, provided with a roller against which the cam $e$ acts, and forked at its lower end to fit over the shaft $f$ as a guide for its lower end. The upper end of it is pivoted to the arm $e^2$, rocking loosely on the shaft $a'$. Said arm $e^2$ carries a spring-pawl adapted to catch in the teeth of the gear-wheel $e^3$, also loosely fitted on the shaft $a'$, and which carries a pawl arranged to operate the ratchet-wheel $e^4$, which is connected to the shaft $a'$ through the medium of the coil-spring $e^5$. A gear-wheel, $e^6$, meshing into the wheel $e^3$, is connected to the shaft $a$ by means of a ratchet-wheel and coil-spring, which are similarly lettered to those on the shaft $a'$, and are identical in construction therewith.

The enlarged views, Figs. 9 and 10, more clearly show the construction of one set of wheels and pawls of the feeding device.

The fur being held by the two sets of bands $a^2$ $a^3$ and shafts $a$ and $a'$, as before described, the proper tension is imparted to it by turning the ratchet-wheels $e^4$, thereby winding up the coil-springs $e^5$ $e^5$, which connect the two ratchet-wheels to the shafts $a$ and $a'$. The fur is fed over the rounded edge of the table $d$ about the one-sixteenth of an inch each time the cam $e$ makes a revolution, moving the wheel $e^3$ in the direction indicated by the arrow and winding up the lower set of bands, $a^3$, on the shaft $a'$, and at the same time letting off from the shaft $a$ the fur or upper set of bands, $a^2$, as fast as it is wound up on the lower shaft, $a'$, the meshing together of wheels $e^3$ and $e^6$ always keeping the fur under tension; and should the stretching of the fur and bands not be sufficient to accommodate the slight gradual increase of the feed due to the increasing angular velocity of the bands on the lower shaft, $a'$, and the decreasing angular velocity of them as they are unwound off the shaft $a$, then the coil-springs $e^5$ $e^5$ perform another useful function by accommodating such variations in the feed, and by always keeping the same tension on the fur. The spring $e^7$ moves the arm $e^2$ back and keeps the roller on the rod $e'$ against the cam $e$. When all the fur has been run over the rounded edge of the table $d$ it is readily removed from the machine by releasing the ratchet-wheels $e^4$ of the pawls on the wheels $e^3$ $e^6$, which leaves the shafts $a$ and $a'$ free to have the bands and the fur unwound therefrom and a fresh fur with connecting-bands attached thereto and adjusted in the machine, as above setforth.

The next device in order is the table $d$. This has a curved top, as shown, which is provided with a series of grooves, $d'$ $d'$, converging from the center to each side, which is clearly seen by dotted lines in the plan view, Fig. 2. The object of these convergent grooves is to cause the fur to travel from the center of the table to both sides as it is drawn over the table, and as this tendency of the fur to move sidewise is equal in both directions, it follows that the only action on it is to stretch it transversely, thereby removing all creases and causing it to move over the round edge of the table in a smooth condition. On the under side of the table $d$ is a curved

plate $d^2$, adjoining the rounded edge, over which the fur is pulled as it leaves the rounded edge. The table is secured by bolts to metal frames bolted to the tops of the side frames, *b b'*, at about the center thereof.

The air-blast-producing device is next in order. In the drawings it is represented as an ordinary bellows, the top plate, *g*, of which is secured to the side frames, *b b'*, and the bottom plate, *g'*, hinged to the nozzle-holder, which extends the whole width of the machine, the opening in the nozzle *s* being a long narrow slit located a short distance from the round edge of the table *d*, and in line therewith. The plate *g'* is provided with an air-inlet valve, and at its rear end has an eye, to which is pivoted the rod $g^2$, the lower end of which is pivoted to the arm $g^3$, secured to the rock-shaft $g^4$, to which motion is imparted from the cam *h*, secured to the main shaft *f* in the position indicated in Fig. 8, through the medium of the rod *h'*, bifurcated to straddle the shaft *f*, and provided with a roller and retractile spring in a similar manner and for the purpose the rod *e'* is. The other end of the rod *h'* is connected to the short arm $h^2$, secured to the rock-shaft $g^4$, as shown at Fig. 3. The outer end of the arm $g^3$ is slotted, so as to allow the pivot connecting the rod $g^2$ thereto to be adjusted toward and from the rock-shaft $g^4$, thereby permitting the movement of the lower plate, *g'*, of the bellows to be varied and adjusted in accordance with the strength of blast required to separate the wool from the hairs of the part of the fur standing out off the rounded edge of the table.

The next device to be described is the gate arrangement for holding back the wool after it is separated from the hairs by the air-
177½ blast. This device consists of two thin plates, *i i*, or "gates," as I term them, secured longitudinally to two shafts *i' $i^2$*, fitted to rock in bearings provided therefor in the frames which hold the table *d*. To prevent the gates *i i* shutting off the air-blast from the wool as they are closing down onto it, which would allow some of the wool to spring back, I perforate the gates, thus admitting the blast to pass through them, and so continuously act on the wool until the gates have closed on it. The shafts *i'* and $i^2$ are connected together by small gear-wheels, so that the gates *i i* are caused to move to and from the rounded edge of the table simultaneously; and they are so operated by the rod $i^3$, connecting the lower shaft, $i^2$, to the rock-shaft $i^4$, by being pivoted to cranks or arms on the ends of them, the rock-shaft $i^4$ receiving its movement from the cam *k*, secured to the main shaft *f*, through the medium of the bifurcated rod *k'*, also provided with a roller to act against the cam *k*, and a retractile spring to keep the roller against the cam and to move the gates *i i* away from the rounded edge of the table.

The device for pulling the hairs out of the skin consists of the two griping-bars *l l*, connected to or forming a part of the shaft *l'* and $l^2$. These bars *l l* are the same width as the gates *i i* and extend across the machine, and their shafts *l' $l^2$* pass through bearings in the blocks $l^3$ $l^3$, which are fitted to slide in frames secured

to the tops of the frames $b$ $b'$. These shafts $l'$ $l^2$ are connected together by means of small gear-wheels, and caused to rock in their bearings, so as to open and close the griping-bars $l$ $l$, by the lower one, $l^2$, being connected to the rock-shaft $l^4$ through the medium of the rod $l^5$ and arms on the ends of the shafts. A cam, $m$, secured to the main shaft $f$, actuates the rock-shaft $l^4$ by means of the bifurcated rod $m'$, connected to the arm $m^2$ on the rock-shaft $l^4$. This rod $m^2$ is provided with a roller and a retractile spring, the end of the spring being secured to the bar $n$, which extends across from frame $b$ to frame $b'$, as are the retractile springs of the other bifurcated rods, before mentioned. The griping-surface of one of the bars $l$ or $l'$ is provided with a flexible face, made by fitting a strip of india-rubber in a dovetailed groove, and the other one is provided with longitudinal metal ridges, as is clearly shown in the enlarged view, Fig. 5, so that they are enabled to firmly gripe the hairs between them. They may both have flexible faces; but I prefer to make one of them with metal ridges, as shown, as being more efficacious to properly perform their function. The two sliding blocks $l^3$ $l^3$ are operated so as to cause the griping-bars $l$ $l$ to approach to or recede from the rounded edge of the table $d$ by means of the two cams $o$ $o'$, secured to the main shaft $f$, between which is placed the slotted rod $o^1$, provided with two rollers, one to act on each of the cams $o$ $o'$, one of which is the reverse of the other, so a positive motion is given the rod $o^1$ in both directions; and the upper end of the rod $o^1$ is pivoted to an arm, $o^3$, secured to the rock-shaft $p$, to each end of which are securely fastened the bifurcated arms $p'$ $p'$, embracing studs projecting from the sliding blocks $l^3$ $l^3$, so that the rock-shaft $p$ imparts reciprocating motion to the blocks $l^3$ $l^3$ as it is actuated by the cams $o$ $o'$ through the medium of the rod $o^1$. The main shaft $f$ carries a pulley, $r$, over which runs a belt from the source of power to impart rotary motion to the shaft, and this shaft $f$, with the rock-shafts $i^4$ and $l^4$, is carried in bearings located at the central lower parts of the frames $b$ $b'$, the rock-shaft $g^4$ being under the bellows $g$ $g'$ at the lower part of the frames and the rock-shaft $p$ directly under the sliding blocks $l^3$ $l^3$, and most of the connecting gears and rods are duplicated, as shown, to insure the various devices properly performing their functions; and the various cams actuating the different devices are so shaped, and adjusted on the main shaft $f$ in such manner, as is well understood by skilled mechanics, to cause the various devices to operate in unison and perform the work for which they are designed, as follows:

The fur is placed in the machine so that its edge is just over the rounded edge of the table $d$, or is moved in this position by the feeding device, as before described. The griping-bars $l$ $l'$ are open and in their backward positions, and the gates $i$ $i$ also opened against the bars $l$ $l'$, thus forming a channel through which the blast of air passes. As the nozzle $s$ of the bellows is between the bars $l$ $l'$, the blast of air from the nozzle $s$ blows the wool of the fur away from the hairs, as shown at Fig. 4. The gates $i$ $i$ now close down on the

wool, leaving the hairs only standing out between their edges, as shown at Fig. 5. The air-blast now ceases and the griping-bars *l l'* move forward and come together, griping the hairs firmly between them, as shown at Fig. 6; or the blast may continue until the griping-bars have closed on the hairs. The griping-bars now move back away from the rounded edge of the table, thereby pulling all the hairs presented to them entirely out of the skin, as shown at Fig. 7. The griping-bars *l l'* now open dropping the hairs pulled out by them, and the gates open against the griping-bars *l l'*, as shown at Fig. 4. The feed operates to bring a fresh part of the fur over the rounded edge of the table *d*, and the operation of the various devices just described is repeated, and so on until the whole fur has been passed under treatment and all the hairs removed therefrom, when it is removed and a fresh one placed in the machine.

Letters patent of the United States to H. A. House and S. D. Castle, numbered 233,415, dated October 19, 1880, for machine for treating pelts, shows a device for pulling out the master-hairs from pelts. So I do not claim, broadly, a hair-pulling device; nor do I claim, broadly, the combination of a knife-edged bar and
177 means for stretching and intermittently feeding the skin over the bar with an air-forcing apparatus arranged above the knife-edged bar.

Having now described my invention and the manner in which it may be carried out, I wish it understood that I do not confine myself to the particular construction and arrangement of the mechanical elements set forth to operate the various devices for plucking fur by entirely removing the hairs therefrom, as it is evident that numerous modifications may be made in the machine above described without departing from the nature of my invention. So

What I claim and desire to secure by letters patent, is—

1. As an improvement in the art of plucking furs, first separating the soft wool from the hairs by means of an air-blast, and then pulling out the hairs entirely from the skin, substantially as hereinbefore set forth.

2. In a fur-feeding device, the combination of two shafts, upon which the fur or bands secured to the fur are wound, and having an intermittent motion imparted to them, with a curved table, provided with convergent grooves on its surface and a rounded edge, over which the fur is intermittently fed, substantially as and for the purpose hereinbefore set forth.

3. In a fur-feeding device, the arm $e^2$, provided with a pawl and oscillated by means of a cam on the main shaft of the machine, the gear-wheel $e^3$, also provided with a pawl, and the ratchet-wheel $e^4$, connected to the shaft $a'$ by means of the coil-spring $e^5$, in combination with the gear-wheel $e^6$ and shaft $a$, they being also connected through the medium of a ratchet-wheel and coil-spring, substantially as and for the purpose set forth.

4. In a fur-plucking machine, in combination, a rounded-edge

table, over which the fur is fed, an air-blast-producing device, gates for holding back the soft wool of the fur, and a pair of griping-bars for pulling the hairs out of the skin which project between the gates, constructed and operated substantially as hereinbefore set forth.

5. The combination and arrangement of the automatically operated devices constituting a fur-plucking machine, as follows: A feeding and spreading device consisting of two tension-shafts, around which the fur or its holding-bands are wound, and a convergently-grooved and rounded-edge table, a pair of gates for holding back the wool on the rounded edge of the table, an air-blast-producing device, and a pair of hair griping and pulling bars, substantially as hereinbefore set forth.

6. In combination the gates *i i*, constructed and operated to hold back the wool of the fur, with the griping bars *l l'*, fitted in sliding blocks *P P*, and operated to be moved in close proximity to the gates, then closed to gripe between them the hairs standing out between the gates, and then moved back, carrying the hairs with them, substantially as and for the purpose hereinbefore set forth.

7. In a hair griping and pulling device, the combination of the bar *l*, provided with an elastic face, with the bar *l'*, provided with a rigid face to act against the elastic face of the bar *l*, substantially as and for the purpose hereinbefore set forth.

In witness whereof I have hereunto set my hand this 30th day of October, A. D. 1880.

DAVID MUELLER.

In presence of—

D. KÖNIGSBERG.
H. D. WILLIAMS.

No. 192
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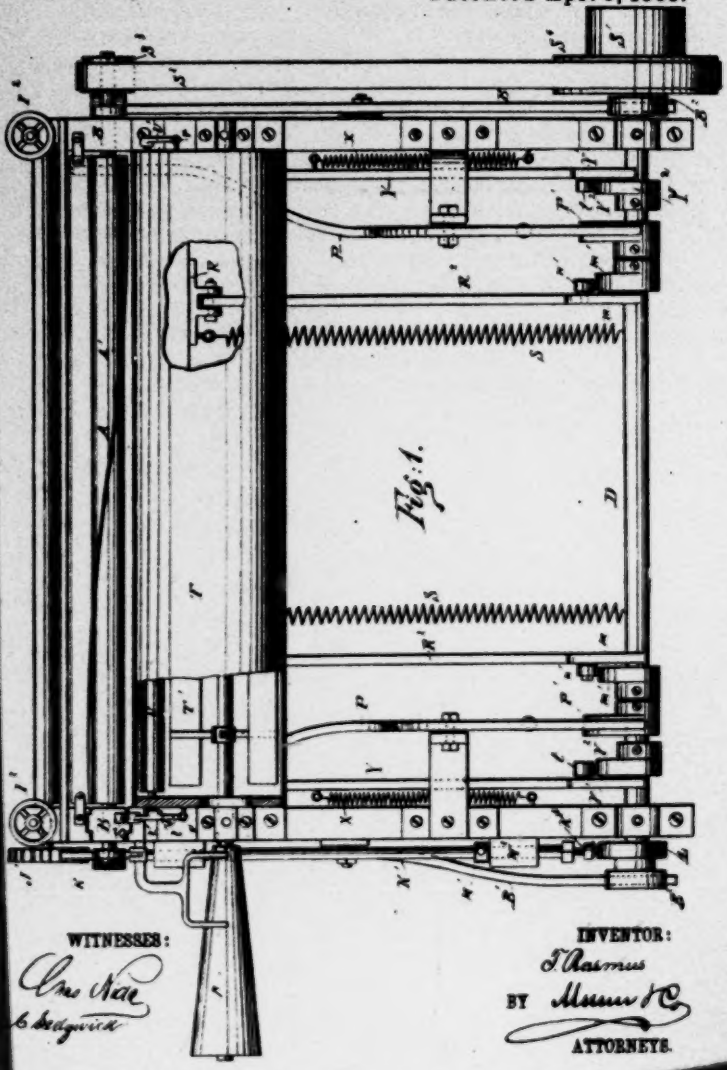
v.
American Co. } p. 178a

(No Model.) 6 Sheets—Sheet 1.

# T. RASMUS.

## FUR CLIPPING AND UNHAIRING MACHINE.

No. 275,077. Patented Apr. 3, 1883.

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no. 192
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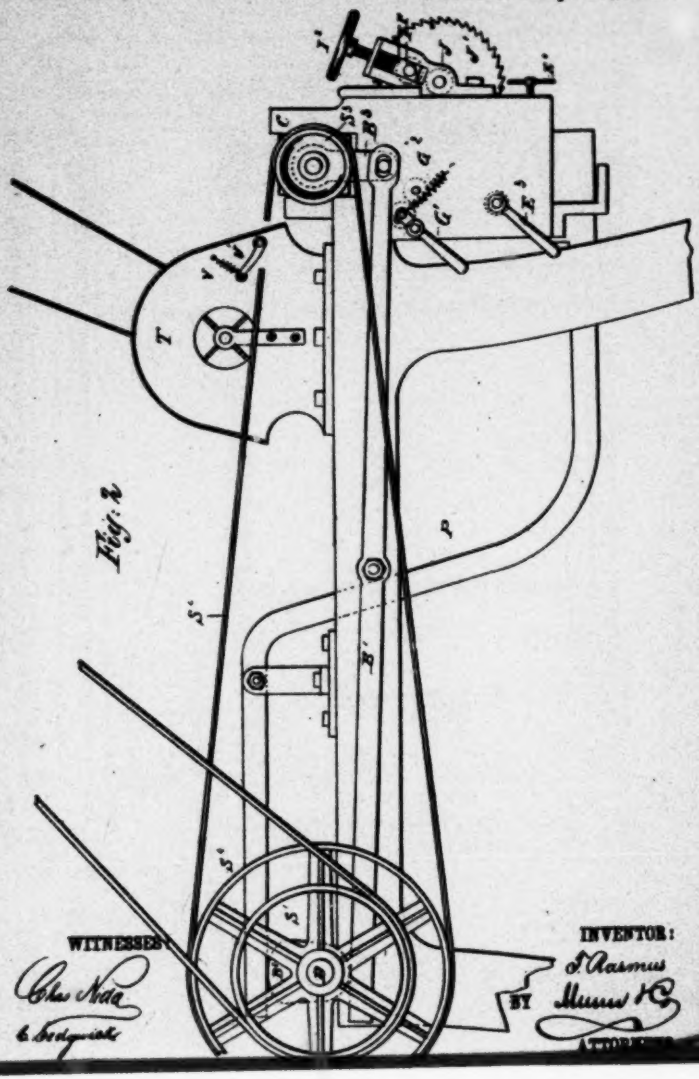
(No Model.) 6 Sheets—Sheet 2.

# T. RASMUS.

## FUR CLIPPING AND UNHAIRING MACHINE.

No. 275,077. Patented Apr. 3, 1883.

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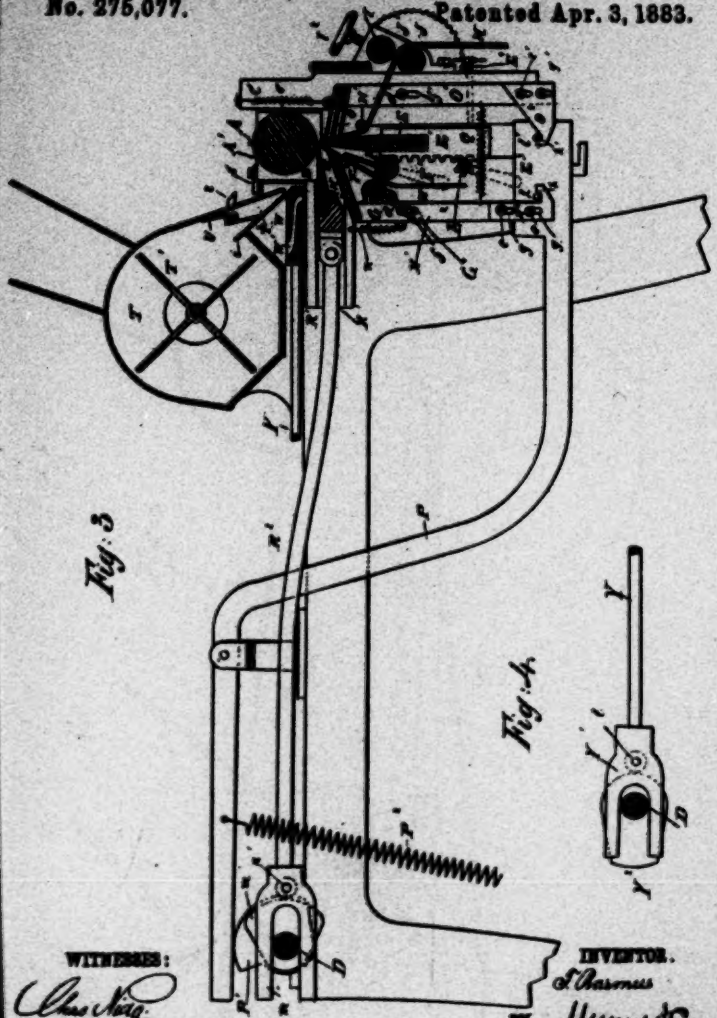
(No Model.) 6 Sheets—Sheet 3.

# T. RASMUS.

## FUR CLIPPING AND UNHAIRING MACHINE.

No. 275,077. Patented Apr. 3, 1883.

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Cimiotti Co
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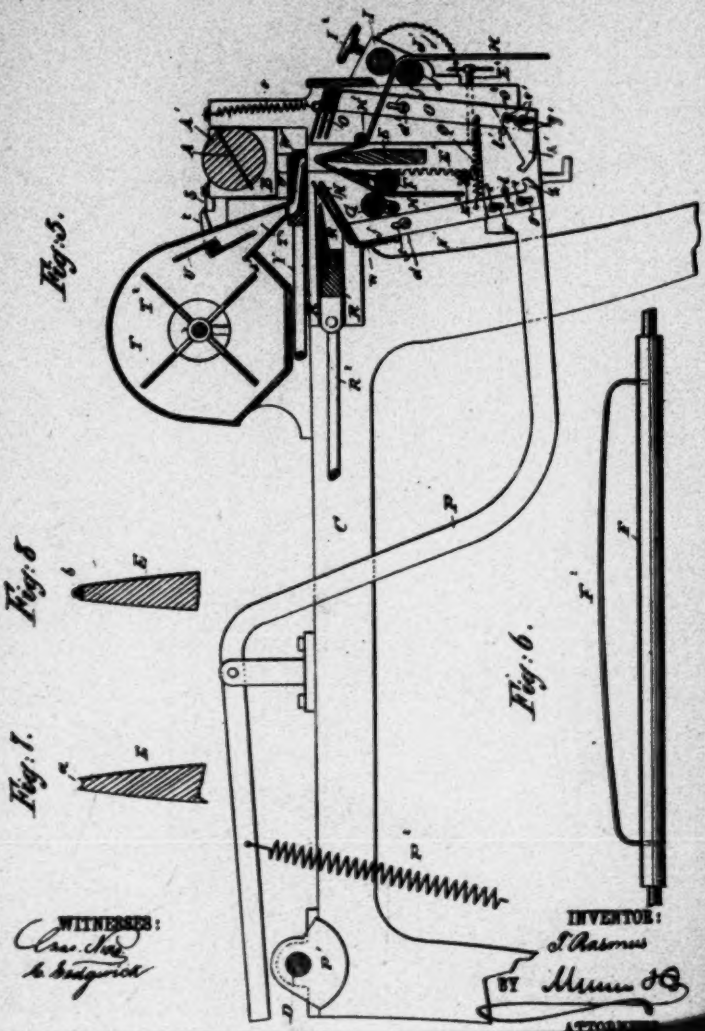
(No Model.) 6 Sheets—Sheet 4.

# T. RASMUS.

## FUR CLIPPING AND UNHAIRING MACHINE.

No. 275,077. Patented Apr. 3, 1883.

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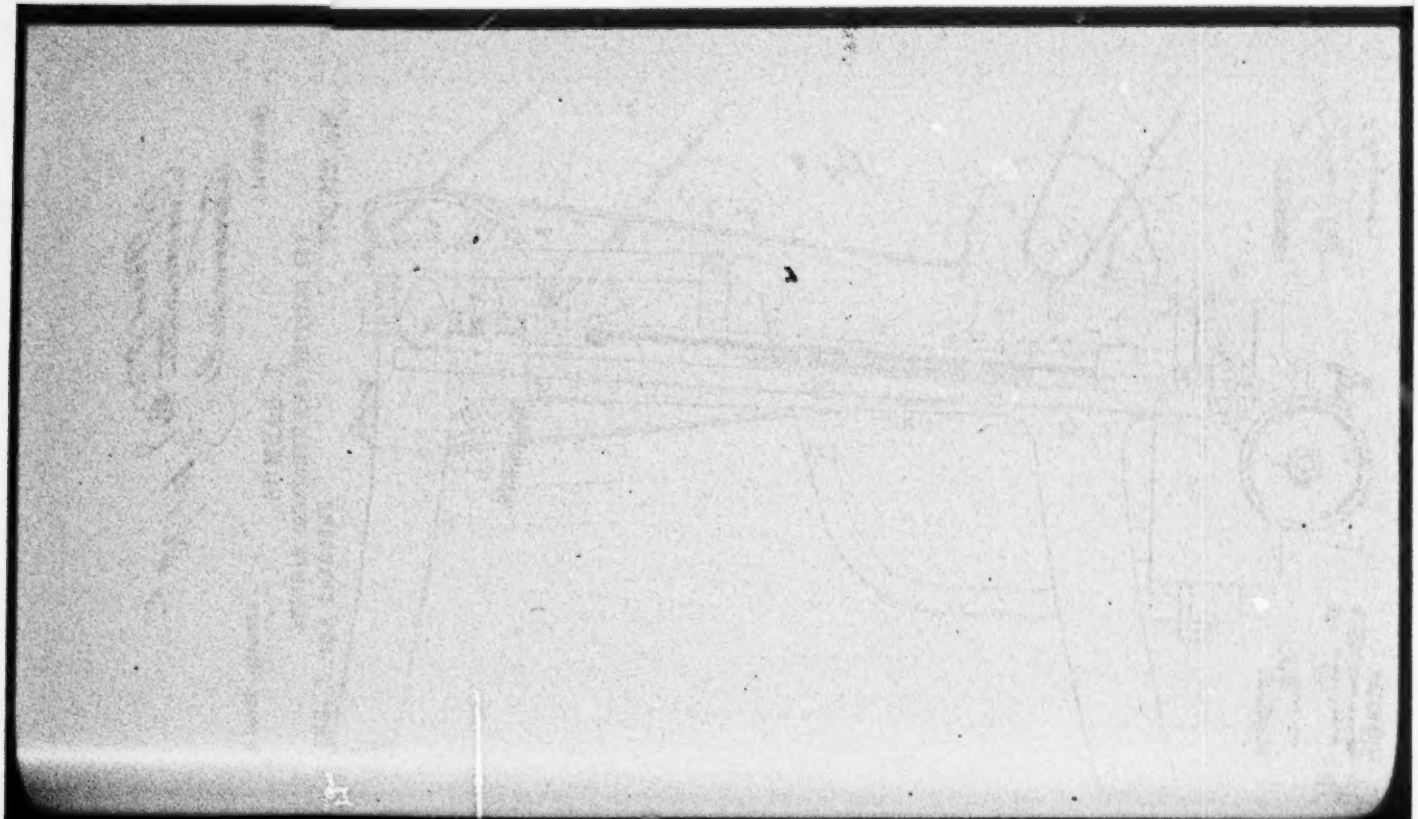

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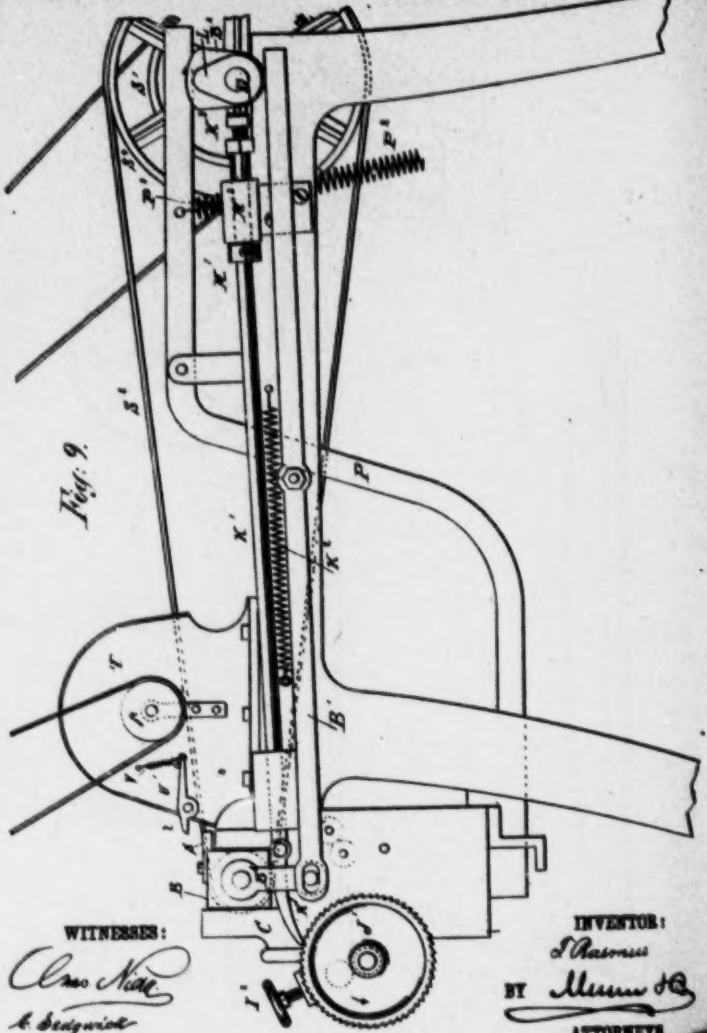
American Co } p. 178 e

(No Model.) 6 Sheets—Sheet 5.

# T. RASMUS.

## FUR CLIPPING AND UNHAIRING MACHINE.

No. 275,077. Patented Apr. 3, 1883.

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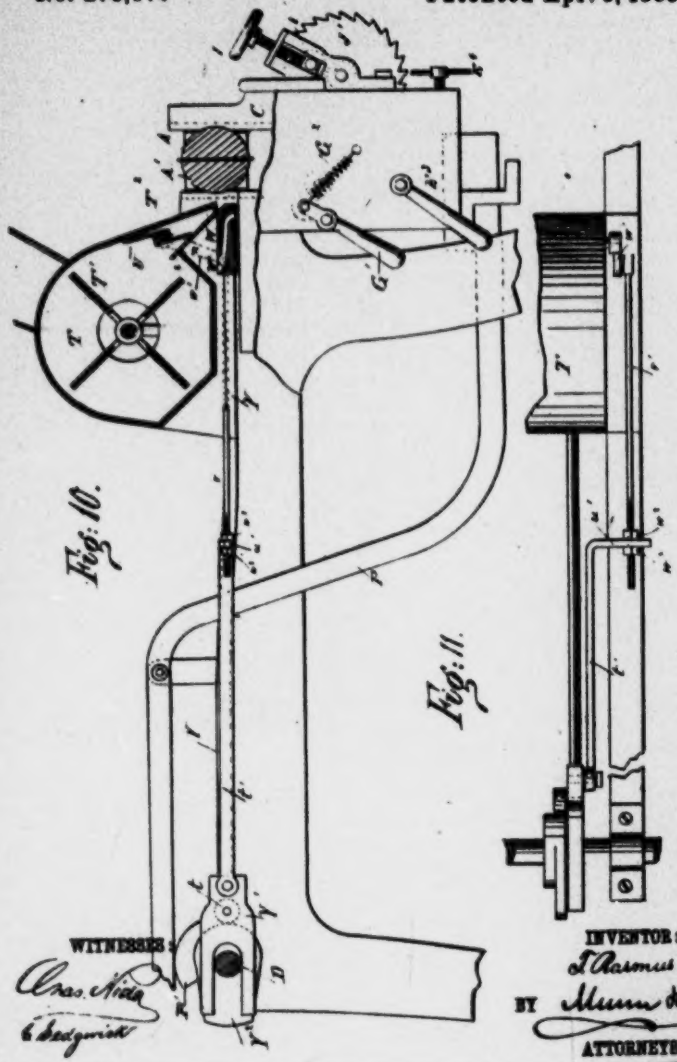
No. 192
Cimiotte Co
American Co
p. 178 f

(No Model.) 6 Sheets—Sheet 6.

# T. RASMUS.

## FUR CLIPPING AND UNHAIRING MACHINE.

No. 275,077 Patented Apr. 3, 1883.




WITNESSES:
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C. Sedgwick

INVENTOR:
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## *Fur Clipping and Unhairing Machine.*

Specification forming part of Letters Patent No. 275,077, dated April 3, 1883. Application filed November 23, 1882. (No model.)

To all whom it may concern:

Be it know that I, Theophil Rasmus, of the city, county, and State of New York, have invented a new and improved fur clipping and unhairing machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for removing the stiff bristles or water-hairs from seal-skins and other skins, and also for unhairing such skins or cutting off part of the length of the hair of the skins.

The invention consists in a machine for clipping and unhairing fur, provided with devices for stretching the fur over a plate, devices for delivering a current of air on that part of the fur which is stretched on the edge of the said plate, and with devices for holding the fine hair and wool down, and other devices for clipping off the coarse hairs or bristles which are not laid over by the current of air. The current of air is produced by a suitable blower on the machine and passes to the edge of the plate through a movable nozzle-plate which is moved forward when the cutting devices are removed, and which nozzle-plate is moved back when the cutting devices approach the edge for the purpose of clipping the hairs.

The invention further consists in devices for moving the nozzle-plate for opening or closing a gate in the spout of the air-forcing apparatus, in devices for moving the cutting-knives toward the upper edge of the plate over which the skin is stretched, and in devices for pressing combs against the skin after the hairs have been laid down by the current of air, all of which devices are operated from one and the same driving-shaft, and are all operated in regular order.

The invention also consists in parts and details and various combinations of the same, as will be fully described and set forth hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

(Here follow diagrams marked pp. 178 *a*, *b*, *c*, *d*, *e*, & *f*.)

Figure 1 is a plan view of my improved fur clipping and unhairing machine, parts being broken out and others shown in section. Fig. 2 is a longitudinal elevation of the same. Fig. 3 is a longitudinal sectional elevation of the same, showing the position of the parts at the moment of clipping the hairs. Fig. 4 is a longitudinal elevation of the cam end of the bar for moving the nozzle of the blower. Fig. 5 is a longitudinal sectional elevation of the machine, showing the parts separated before cutting off the hairs. Fig. 6 is a longitudinal elevation of the feed and stretching roller. Fig. 7 is a cross-sectional elevation of the blade over which the fur is passed. Fig. 8 is a cross-sectional elevation of a modification of the same. Fig. 9 is a longitudinal elevation of the machine, showing the mechanism for operating the feeding device and raising the rotary cutter. Fig. 10 is a longitudinal elevation of my fur clipping and unhairing machine, showing a modified construction of the device for opening the gate of the blower, parts of machine being shown in section. Fig. 11 is a plan view of the rod for operating the gate of the blower.

A spiral knife, A, having two diametrically-opposite cutting-edges, is securred in a cylinder, A′, journaled in vertically-movable bearings B, which are contained and guided in a recess in the frame C of the machine. The bearings B are each provided with a downwardly-projecting arm, $B^3$, which has a pivot working in a longitudinal end slot in a lever, B′, which is pivoted to the side of the frame C and is adapted to rock vertically. The opposite end of the lever B′ rests against a cam, $B^3$, mounted on the driving-shaft D of the machine, whereby when the said shaft D rotates the corresponding end of the lever B′ will be depressed, and thereby the end attached to the bearing B will be raised, and when the shaft D completes its revolution the weight of the bearing will cause the same to descend, and will cause the end at the cam $B^2$ to rise. The bearings B, at each end of the spiral knife A, rest upon a lever, B′, which is acted upon by a cam, $B^2$, in the manner described. A vertical plate, E, which is tapered toward its upper edge, is held in a vertical position directly below the central line of the spiral knife A and parallel with the said central line. The said plate E is attached to racks E′, which engage with pinions $E^2$, mounted on a shaft, which is provided at one end with a handle, $E^3$. By turning the said handle the racks E′ and the plate E can be raised or lowered more or less, as may be desired or necessary. By means of screws $E^4$, projecting from the front of the machine and extending back to the racks E′, the said racks can be locked in the desired position. The plate E is provided in its upper narrow edge with a longitudinal groove, *a*, as shown in Fig. 7, whereby two edge ridges will be formed, one at each longitudinal side of the plate; but a wire or catgut string, *b*, can be placed within the groove *a*, as shown in Fig. 7. A roller, F, parallel with the plate E, is held in the frame C, and is provided at one end with a handle, F′, by means of which it can be turned. A metal bow or frame, $F^2$, projects from the top of the roller F, the said bow projecting more or less toward

178½

the upper edge of the plate E, as shown in Fig. 3, which inclination of the frame or bow $F^2$ toward the upper edge of the plate E can be adjusted by means of the handle F′ on the said roller.

Adjoining to the roller F a roller, G, is journaled in swinging bearings in the frame C, one of which bearings is provided with a handle, G′, whereby by pulling the handle downward the roller G can be separated from the roller F. A spring, $G^2$, acting on the upper part of the handle G′, presses the roller G against the roller F.

The fur H which is to be clipped or unhaired is passed between the rollers F and G, over the upper edge of the plate E, and under a roller, H′, and then between two feed-rollers, I and J, on the front of the frame C, of which the roller I is mounted in sliding bearings I′, which can be moved toward or from the roller J by means of hand-wheels $I^2$. A ratchet-wheel, J′, is rigidly mounted on one end of the feed-roller J, and with the teeth of the said ratchet-wheel J′ a pawl, K, engages, which is mounted on the end of a rod, K′, which is adapted to slide backward and forward in the direction of the length of the machine, and which is drawn from the rear of the machine by a spring, $K^2$, attached to the rod K′ and to the frame C. At its rear end the rod K′ is provided with a buffer, $K^3$, against which a cam, L, on the shaft D is adapted to strike. The said buffer $K^3$ is attached to a screw, by means of which the distance it projects from the rear end of the rod K′ can be adjusted. An adjustable sleeve, M′, is secured on the rod K′ and strikes against a bearing, $M^2$, in which the rod K′ slides, and thus prevents the rod K′ from being drawn too far back by the spring $K^2$. Every time the shaft D rotates it pushes the rod K′ forward in the direction of its length, and thereby causes the pawl K to rotate the wheel J′, whereby the feed-rollers will also be rotated, and the skin or fur H will be fed forward from the rear toward the front part of the machine.

Two combs, N, on the rear side of the plate E, are attached at the ends to the upper ends of bars N′ in such a manner that the teeth of the said combs project upward toward the upper edge of the plate E and toward the front of the machine. The bars N′ are pivoted to rock forward and backward in the vertical plane by means of pivots *d*, passing through longitudinal slots *f* in the said bars.

To the lower end of each bar N′ a hook-plate, $N^2$, is held by means of screws *e*, passing through longitudinal slots *g* in the said hook-plate, whereby the hook-plate can be adjusted higher or lower. The hook-plate is provided at its lower end with a hook, *h*, which projects toward the front of the machine.

A series of combs, O, (in the case shown three,) are attached at the ends to the upper ends of bars O′ which are also pivoted to swing backward and forward in the vertical plane by means of screws *d*′, passing through vertical slots *f*′, and to the lower end of each bar O′ a hook-plate, $O^2$, is attached, which is provided at its lower end with a hook, *h*′, projecting toward the hook *h*, and the said hook-plate $O^2$ can be adjusted higher or lower on the lower end of the

bar O′ by means of screws $e'$, passing through longitudinal slots $g'$ in the hook-plates.

At each side of the machine a curved lever, P, is pivoted, the rear end of which is above a cam, P′, mounted on the shaft D, which rear end of the lever P is drawn downward upon the said cam by a spring, $P^2$. At or near the middle the lever P is curved downward, and the front end will be below the plate E. Two studs, $l$ and $l'$, project from one side of the front end of each curved lever P, the said studs resting against the adjoining edges of the bars N′ O′ or their corresponding hook-plates, $N^2$ $O^2$, as shown. One pair of bars N′ and O′ is at each side of the machine, and, as stated above, a corresponding lever, P, is also provided at each side of the machine. The bars O′ and N′, are drawn toward each other at their lower ends by a spring, Q, attached to both bars. Each bar O′ is drawn upward by a spring, $o$, attached to the said bar and to the frame C, and each bar N′ is drawn upward by a spring, $n$, attached to the said bar and to the frame of the machine.

A horizontally-sliding knife, R, is held transversely in the machine-frame and is guided in tracks R′, and at each end it is pivoted to a rod, $R^3$, which rods are each provided at the opposite end with a fork, $m$, the shanks of which surround the shaft D.

Adjoining each fork $m$ the shaft D is provided with a cam, $m'$, which is adapted to strike against a roller, $n'$, on a pintle projecting from the side of each fork $m$, whereby when the shaft D rotates the cams $m'$ will press the knife R toward the front of the machine. Springs S, attached to the frame of the machine and to the knife R, draw the same toward the rear of the machine.

A hollow drum, T, containing a fan-blower, T′, the shaft of which passes longitudinally through the drum T, is mounted on the frame C, and the said drum is provided at its front end with a spout, $T^2$, which extends throughout the entire width of the machine and is above and slightly back of the upper edge of the plate E. The fan-blower T′ is provided at the end of its shaft with a cone-pulley, $p$, whereby by shifting the belt on the pulley the speed of the fan-blower may be increased or decreased.

178⅞

A gate, U, is mounted on a shaft passing longitudinally through the upper part of the spout $T^2$, which gate extends the entire length of the said spout. By turning the said gate so that the outer edges of the same rest against the sides of the spout the said spout will be closed and the compressed air cannot issue from the same. Arms U′ are attached to each end of the shaft, on which the gate U is rigidly mounted, and the ends of the said arms are drawn upward by springs V, whereby the gate U is held closed. One arm U′ is provided with a projection, $r$, toward the front of the machine, which projection is of such length that it can be struck by an arm of the vertically-movable bearing B at the same side of the machine.

A plate, W, resting flat on the top of the machine-frame, is provided throughout its entire length with a diagonal channel, W′, which extends from the rear part of its upper surface to the front

part of its lower surface, and the said plate W is attached at each end to a rod, Y, each of which is provided at the opposite end with a fork, Y′, surrounding the shaft D, which is provided, adjoining to each fork Y′, with a cam, $Y^2$, which is adapted to press against a roller, *t*, mounted on a pintle projecting from the side of the fork, whereby when the shaft D rotates the plate W will be pushed toward the front end of the machine.

Springs X, attached to the frame of the machine and to the rods Y, draw the plate W toward the rear part of the machine. When the plate W has been pushed toward the front end of the machine to its full extent, the opening of the spout $T^3$ will be exactly above the rear opening of the diagonal channel W′ in the plate W.

The driving-shaft D is driven by a belt passed over a pulley, S′, and the rotating knife A is operated by a belt, $S^3$, passing over a pulley, $S^2$, on the end of the knife-cylinder A′, and over a pulley, $S^4$, mounted on the shaft D.

The fan-blower is operated by a separate pulley. The fan-blower may be made of the usual construction; or, if desired, it may be provided with a longitudinal ridge, *i*, which projects a short distance within the casing along the upper end of the bottom side of the spout, as shown in Figs. 3, 5, and 10. The projection *i* causes a stronger current of air to be forced out of the spout.

I have shown a projection, *r*, on one of the arms U′ for operating the gate U of the blower; but in place of the same I may use a rod which is operated directly from the fork Y′. An arm, *w*′, projects downward from the shaft of the gate U, and its lower end is pivoted to a rod, *v*′, the opposite end of which is screw-threaded and passed through the rectangularly-bent end *end u*′ of a rod, *t*′, which is pivoted to the fork Y′, as shown in Fig. 10. Locking-nuts, $w^2$, on the threaded end of the rod *v*′ at opposite sides of the bent end *u*′ of the rod *t*′, serve to hold the rod *v*′ in the desired position in relation to the rod *t*′, and permit of adjusting the length of the two rods in such a manner that the gate U will be opened more or less by the said rod. In place of making the rod adjustable, as described above, a single length of rod may extend from the lower end of the arm *w*′ to the fork Y′. Whenever the movable nozzle-plate W is moved forward the rods *t*′ *v*′ will open the gate U and permit air to pass out of the spout $T^2$ of the blower T.

The operation is as follows: The fur that is to be clipped or unhaired is passed between the rollers F and G, behind the plate E, over the upper edge of the said plate, under the roller H′, and then between the feed-rollers I and J, which are pressed toward each other by means of the hand-wheels $I^2$. Every time the shaft D makes one revolution the cam L pushes the rod K′ toward the front of the machine, and thereby the pawl will rotate the ratchet-wheel J′, as indicated by the arrow, and the fur H will be moved in the direction toward the front of the machine. The cams $B^2$ press down the rear ends of the levers B′, and thereby the front ends of the said levers, and the bearings B, carried by the said front ends, will be raised, as will be

the rotary spiral knife A, which is journaled in the said bearings. As the bearings move upward the projection *s* on one of the bearings strikes the projection *r* on one arm U′, and thereby opens the gate U of the blower and permits the air to issue from the opening of the spout $T^2$, as shown in Fig. 5. At the same time the cams $Y^3$ have pushed the rods Y toward the front of the machine, so that the rear upper opening of the transverse channel W′ in the plate W will be directly below the opening of the spout $T^2$, and the air issuing from the spout will be conducted through the channel W′, the front lower opening of which is then directly above the upper edge of the plate E. During this time the knife R has been held withdrawn by the springs S, and the rear end of the lever P has been lowered by the spring $P^2$, whereby the combs N and O, on the upper ends of the bars N′ and O′, will be held from the plate E. As the movable nozzle-plate W moves forward the wind from the lower opening of the same will first strike the upper edge of the plate E diagonally and will blow down the hair on the front of the plate E, and when the movable nozzle-plate W is in the position shown in Fig. 5 the air is thrown vertically upon the upper edge of the plate E and forces the soft hair down equally at each side, and o. the water-hairs or bristles, which are so stiff that they cannot be blown over by the current of air, remain standing. By this time the shaft D is turned so that the bearings B, carrying the knife A, are lowered, and thereby the springs V are permitted to close the gate U and shut off the current of air. At the same time the movable nozzle-
178½ plate W is withdrawn toward the rear of the machine and the cam P′ raises the rear end of the lever P, and thereby the front end of the said lever will be lowered. The studs *l l′* press against the edges of the bars N′ O′, or the hook-plates $N^2$ $O^2$, and thereby separate the lower ends of the said plates $N^2$ $O^2$, whereby the combs N O, at the upper ends of the said bars, will be moved toward each other and toward the sides of the plate E. At the same time the studs *l l′* draw the plates $N^2$ $O^2$ downward, which movement is permitted by the slots *f f′*, and thereby the ends of the teeth of the combs will be pressed against the hairs that have been blown down at each side of the plate E by the current of air, and will hold the said hairs down against the skin and prevent them from rising when the current of air ceases, for the movement of the combs toward the skin takes place at the same time that the lower opening of the movable nozzle-plate W is being removed from above the upper edge of the plate E. At the same time that the combs are pressed against the skin the transverse knife R is moved toward the front end of the machine to such an extent that its front or cutting edge will be directly above the longitudinal center line of the upper edge of the plate E, and the bearings B have been lowered to such an extent that the lowest point of the spiral edge of the knife A will coincide with the horizontal position of the cutting-edge of the knife R, and thereby the water-hairs or bristles projecting from the skin on the upper edge of the plate E will be clipped or cut off by the

knife R and the rotary knife A. Then the bearings B begin to rise, the feed-rollers draw the skin forward, the knife R is withdrawn, and the rear end of the lever P rises, thereby releasing the lower ends of the bars N′ O′ and permitting the spring Q to draw them together, whereby the combs N and O will be moved from the skin, the movable nozzle-plate W will be moved forward, the gate U will be opened, and the current of air issuing from the bottom opening of the plate W will blow off the hair that has been clipped from the fur, and also will lay down the hair for the next operation, and so on until the fur is clipped.

In some furs different kinds of hairs must be removed and the fur must be passed through the machine one or more times accordingly, a different grade of hairs being removed at each operation. For instance, some hairs require a very strong current of air to cause them to lie against the fur, and others are so slender that the fur must be subjected to a weak current of air only, so that all the hairs both stiff and pliable shall not be folded against the fur, in which case none could be cut off. For this reason I have provided the cone-pulley on the shaft of the fan-blower to permit of increasing or decreasing the speed of the blower at will. The roller F has been provided with a bow-frame, $F^2$, to permit of giving the fur a different inclination before it reaches the upper edge of the plate E.

It may be necessary that some kinds of fur which have peculiar bristles, should be passed over the upper edge of the plate E at a certain inclination. In most cases it will be desirable to use the plate E with a groove in its upper edge, whereby a larger part of the skin will be exposed to the action of a vertical current of air and more bristles will project; or, if only a very small part of the fur is to be exposed to the action of the current of air the catgut or wire *b* is placed in the groove *a*. In the first place a double cut will be made, and a considerable length of fur can be fed for each revolution of the driving shaft; but in the second case the feed must be very slight, as only a very small portion of the fur is exposed to the action of the machine.

In place of combs N and O, metal strips may be used.

The machine can also be adjusted to be used for cutting off a certain length of all of the hairs of a piece of fur, thus making all the hairs of a uniform length. In such cases the plate E must be so adjusted that the distance from the upper surface of the skin on the same to the cutting-edge of the knife R is equal to the desired length of the hairs of the fur.

I am aware that it is not new to combine with a knife-edged bar, means for stretching and means for feeding the skin over the said knife-edged bar, an air-forcing apparatus or oscillating guard-combs or clipping-knives; also, that it is not new to stretch the skin tightly over a knife-edged support, then force the soft hair back by a strong air-current, next retain and protect the soft hair by suitable guard devices, and finally clip or pluck the stiff projecting hair or bristles; but

What I do claim as new and of my invention is—

1. A machine for clipping and unhairing fur, made, substantially as herein shown and described, with devices for stretching the fur over a plate, devices for delivering a current of air on the stretched fur, and with a rotary and a reciprocating knife for cutting the bristles of the fur, as set forth.

2. In a machine for clipping and unhairing fur, the combination, with a plate over the edge of which the skin can be passed, of an air-forcing apparatus, a reciprocating knife, and a vertically-adjustable rotary knife, substantially as herein shown and described, and for the purpose set forth.

3. In a machine for clipping and unhairing fur, the combination, with a plate over the edge of which a skin can be passed, of an air-forcing apparatus, a reciprocating knife, a vertically-adjustable rotary knife, and of combs or strips on each side of the plate over which the skin is passed, substantially as herein shown and described, and for the purpose set forth.

4. In a machine for clipping and unhairing fur, the combination, with a plate over the edge of which a skin can be passed, of an air-forcing apparatus provided with a movable nozzle, and of
178¼ knives for cutting off the hairs of the fur, substantially as herein shown and described, and for the purpose set forth.

5. In a machine for clipping and unhairing fur, the combination, with a plate over the edge of which a skin can be passed, of an air-forcing apparatus provided with a movable nozzle, of a reciprocating and a rotary knife, and of devices for withdrawing the nozzle and pushing forward the reciprocating knife at the same time that the rotary knife is lowered, substantially as herein shown and described, and for the purpose set forth.

6. In a machine for clipping and unhairing fur, the combination, with a plate over the edge of which a skin can be passed, of an air-forcing apparatus, a reciprocating knife, a vertically-adjustable rotary knife, movable combs on each side of the plate over which the skin is passed, and of devices for withdrawing the nozzle of the air-forcing apparatus, moving forward the reciprocating knife, and pressing the combs against the fur at the same time that the vertically-adjustable rotary knife is lowered, substantially as herein shown and described, and for the purpose set forth.

7. In a machine for clipping and unhairing fur, the combination, with a plate, over the edge of which a skin can be passed, of an air-forcing apparatus provided with a movable nozzle and with a gate, a rotary and a reciprocating knife, of combs at each side of the plate over which the skin is passed, and devices for closing the gate in the air-forcing apparatus, withdrawing the nozzle, pushing forward the reciprocating knife, and pressing the combs against the fur at the same time that the rotary knife is lowered, substantially as herein shown and described, and for the purpose set forth.

8. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which the skin can be passed, of

the blower T, provided with a gate, U, having a projection, *r*, on the end of its shaft, and of the rotary knife A, having vertically-movable bearings B, substantially as herein shown and described, and for the purpose set forth.

9. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of the blower T, provided with a gate, U, having arms U′ at the ends, the springs V, acting on the said arms, the projection *r* on one of the arms, and of the rotary knife A, journaled in vertically-movable bearings B, substantially as herein shown and described, and for the purpose set forth.

10. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of the rotary knife A, the knife R, the blower T, and the movable nozzle-plate W, provided with a diagonal channel, W′ thoughout its entire length, substantially as herein shown and described, and for the purpose set forth.

11. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of the rotary knife A, the knife R, the blower T, the movable nozzle-plate W, provided with a diagonal channel, W′, throughout its entire length, the rods Y, the forks Y′, the cams $Y^2$ on the driving-shaft D, the rollers *t* on pintles of the forks Y′, and the springs X, substantially as herein shown and described, and for the purpose set forth.

12. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of the rotary knife A, an air-forcing apparatus, the reciprocating knife R, the rods $R^2$, the forks *m*, the cams *m′* on the shaft D, the rollers *n′*, pintles on the forks *m*, and the springs S, substantially as herein shown and described, and for the purpose set forth.

13. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, of knives for clipping the bristles of the fur, and of combs N and O, attached to the upper ends of bars adapted to swing toward and from the plate E in the vertical plane, substantially as herein shown and described, for the purpose set forth.

14. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, of knives for clipping the bristles off the fur, of the combs N and O, attached to the upper ends of bars adapted to swing toward and from the plate E in the vertical plane, and of a lever acting on the lower ends of the bars carrying the combs and acted upon by a cam on the driving-shaft, substantially as herein shown and described, and for the purpose set forth.

15. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, knives for clipping the bristles off the fur, the combs N and O, attached to the upper ends of bars adapted to swing

toward and from the plate E in the vertical plane, the hook-plates $N^2$ $O^2$, attached to the lower ends of the bars N′ O′, the levers P, and the studs *l l′* on the lower front end of the said levers P, substantially as herein shown and described, and for the purpose set forth.

16. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, knives for clipping the bristles off the fur, the combs N and O, attached to the upper ends of bars adapted to swing toward and from the plate E in the vertical plane, the hook-plates $N^2$ $O^2$, attached to the lower ends of the bars N′ O′, the levers P, the studs *l l′* on the lower front ends of the levers P, and the springs Q, substantially as herein shown and described, and for the purpose set forth.

17. In a machine for clipping and unhairing fur, the com-
178⅛ bination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, knives for clipping the bristles off the fur, the combs N and O, attached to the upper ends of bars adapted to swing toward and from the plate E in the vertical plane, the hook-plates $N^2$ $O^2$, attached to the lower ends of the bars N′ O′, the levers P, the studs *l l′* on the lower front ends of the said levers P, the springs Q, and the springs *n* and *o*, substantially as herein shown and described, and for the purpose set forth.

18. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, of knives for clipping the bristles off the fur, of the combs N and O, attached to the upper ends of bars N′ O′, adapted to swing toward and from the plate E in the vertical plane, which bars N′ O′ are provided with longitudinal slots *f* and *f′*, through which screws or pins *d d′* pass, the hook-plates $N^2$ $O^2$, provided with slots *g g′*, through which screws *e* pass, the levers P, and the studs *l l′*, projecting from the lower end of the same, substantially as herein shown and described, and for the purpose set forth.

19. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, of knives for clipping the bristles off the fur, of combs adapted to swing against the fur, and the rollers F and G, the latter provided with a bow-frame, $F^2$, substantially as herein shown and described, and for the purpose set forth.

20. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, of knives for clipping the bristles off the fur, of combs adapted to swing against the fur, the racks E′, to which the plate E is attached, the pinions $E^2$, for adjusting the racks E′, and devices for locking the racks E′ in position, substantially as herein shown and described, and for the purpose set forth.

21. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, of knives for clipping the bristles off the fur,

of combs adapted to swing against the fur, of the feed-rollers I and J, the ratchet-wheel J′, the pawl K, the rod K′, the spring $K^3$, and the cam L, substantially as herein shown and described, and for the purpose set forth.

22. In a machine for clipping and unhairing fur, the combination, with the plate E, over the edge of which a skin can be passed, of an air-forcing apparatus, of knives for clipping the bristles of the fur, combs adapted to swing against the fur, the feed-rollers I and J, the ratchet-wheel J′, the pawl K, the rod K′, the spring $K^2$, the cam L, the adjustable sleeve M′, and the adjustable buffer $K^3$, substantially as herein shown and described, and for the purpose set forth.

23. In a machine for clipping and unhairing fur, the combination, with the plate over the edge of which a skin can be passed, of an air-forcing apparatus, devices for clipping the hairs, a gate in the air-forcing apparatus, and devices for operating the said gate from the main driving-shaft, substantially as herein shown and described, and for the purpose set forth.

24. In a machine for clipping and unhairing fur, the combination, with the plate over the edge of which a skin can be passed, of an air-forcing apparatus, devices for clipping the hairs, a movable nozzle-plate, a gate in the air-forcing apparatus, and devices for operating the said gate and moving the nozzle-plate forward and backward, substantially as herein shown and described, and for the purpose set forth.

25. In a machine for clipping and unhairing fur, the combination, with the plate over the edge of which a skin can be passed, of an air-forcing apparatus, devices for clipping the hairs, the gate U, the arm $w'$, and the rods $v'$ $t'$, connected with devices operated by the main driving-shaft, substantially as herein shown and described, and for the purpose set forth.

26. In a machine for clipping and unhairing fur, the combination, with the plate over the edge of which a skin can be passed, of an air-forcing apparatus, devices for clipping the hairs, the gate U, the arm $w'$, the rod $v'$, with a bend, $u'$, the nuts $w^3$ on the threaded end of the rod $v'$, and of devices connected with the rod $t'$ and operated by the same driving-shaft, substantially as herein shown and described, and for the purpose set forth.

27. In a machine for clipping and unhairing fur, the plate E, provided on its upper edge with a longitudinal groove, *a*, substantially as herein shown and described, and for the purpose set forth.

28. In a machine for clipping and unhairing fur, the plate E, provided in its upper edge with a groove, *a*, combined with the wire *b*, placed within the said groove, substantially as herein shown and described, and for the purpose set forth.

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HENRY W. COVERT, of Brooklyn, New York.

*Method of and Apparatus for Removing Hairs from Seal and Other Furs.*

Specification forming part of Letters Patent No. 304,992, dated September 9, 1884. Application filed January 31, 1884. (No model.)

To all whom it may concern:

Be it known that I, Henry W. Covert, of the city of Brooklyn, county of Kings, and State of New York, have made certain improvements in the method of and apparatus for removing hairs from seal and other furs, by means of which improvements this work can be done more perfectly than it has heretofore been done, which improvements also enable me to remove the hairs from seal-skins before they are colored; also to remove the hairs from beaver and other skins, which the machines now in use are unable to do.

Following is a full description of my invention, reference being had to the accompanying drawings, making part of this specification.

(Here follow diagrams marked p. 179 *a* & *b*.)

Figure 1 is a front elevation of my machine. Fig. 2 is a section of the same through the line X X. Figs. 3 and 4 are enlarged views, showing the operation of my machine more clearly. Figs. 5 and 6 are end views of my machine, showing the connection of the mechanism with the driving-shaft.

A A, Figs. 1, 2, 5, 6, is the frame which supports the mechanism, fastened together by means of bolts or straps at any convenient points, and placed far enough apart to allow the skin to be unhaired to pass between them.

B B′ are drums of wood, the axles of which pass through and are supported by the frame A A, B′ having a crank on one end, V, and B having a worm-wheel on one end, $I^5$.

C is a cutting blade or shear, pivoted to the frame A A at *p p*, the cutting-edge resting permanently on the fur for the purpose of holding it firmly down in its natural position.

D is the upper and movable blade or shear, which is supported by two arms, K K, fastened to the rock-shaft D′.

D′ is a shaft passing through and supported by the frame A A, which is caused to rock by means of the crank J.

E is a plate of metal or wood, fastened securely to the frame A A, the upper side of which is brought to a sharp but not a cutting edge.

F is a smaller shaft passing through and supported by the frame

No. 192 Cincinnati Co. } p. 179 American Co.

(No Model.) 2 Sheets—Sheet 1.

# H. W. COVERT.

## METHOD OF AND APPARATUS FOR REMOVING HAIRS FROM SEAL AND OTHER FURS.

No. 304,992. Patented Sept. 9, 1884.

Fig. 1.

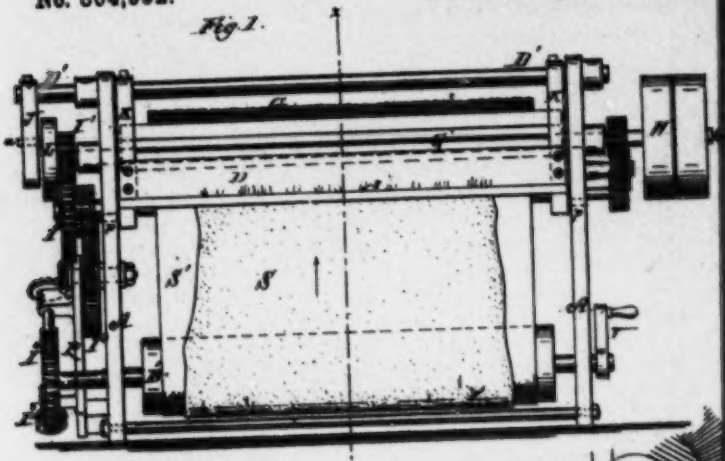


Fig. 3.

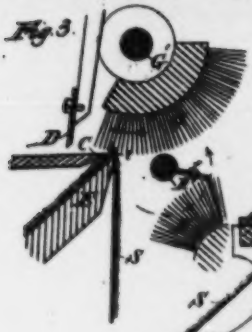


Fig. 2.

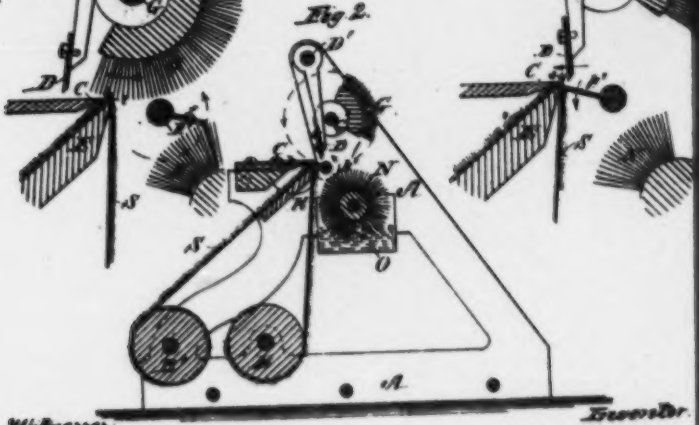
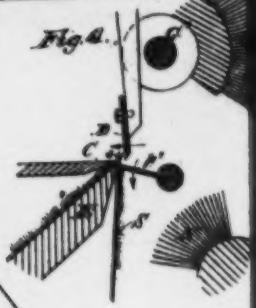


Fig. 4.



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Stanley A. Covert.

Inventor.
Henry W. Covert

No. 192
Cincinnati Co
American Co } p. 179 b

(No Model.) 2 Sheets—Sheet 2.

H. W. COVERT.

METHOD OF AND APPARATUS FOR REMOVING HAIRS FROM SEAL AND OTHER FURS.

No. 304,992. Patented Sept. 9, 1884.

Fig. 5.

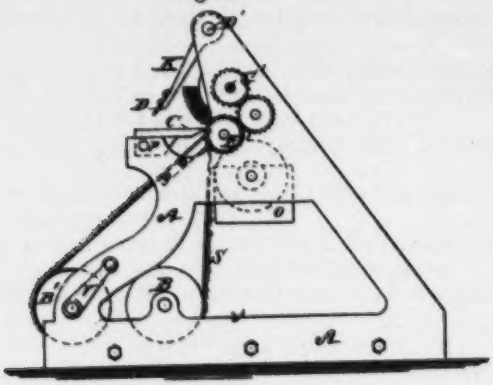
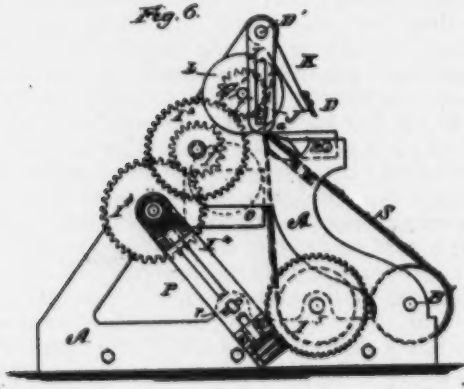


Fig. 6.



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Henry W. Covert

A A, which is revolved in the direction indicated by the arrow by the gear-wheels shown in plate 5.

G′ is the driving-shaft, passing through and supported by the frame A A.

G is a segment of a cylindrical brush, which is fastened to and revolved by the shaft G′.

H is the driving-pulley, which imparts motion to all the machinery.

I′ $I^2$ $I^3$ $I^4$ $I^5$, Fig. 6, show the feeding arrangement, I′ being fastened to the driving-shaft G, and $I^5$ to the drum B. The bar $I^4$ centers on the shaft of $I^3$, and by means of the bolt which passes through the frame and slot shown at *r* can be disconnected from $I^5$.

J is a slotted crank attached to the shaft D′.

K K are arms fastened to the shaft D′, which arms support the movable blade D.

L is a wheel attached to the shaft G′, having a projecting pin, *a*, which passes through the slot in the crank J, causing the shaft D′ to move back and forward as the shaft G′ revolves.

N is a cylindrical brush supported by the frame A A, but free to revolve.

O is a vessel partly filled with water or any equivalent fluid, into which the brush N is partly submerged.

S is a belt of cloth which passes over the plate E, one end of which is fastened to the drum B′, and the other end to the drum B.

*f* is a plate of metal fastened to the shaft F, and revolving with it inside of the frame A A.

*s* represents the hairs as they appear released from the fur.

*t* represents a layer of fur as it lies when brushed over and before it is passed on to the body of the fur previously brushed over.

The operation of my machine is as follows: The skin, S, from which the hairs are to be removed is sewed to the belt S′, and then wound tightly around the drum B′. Now, when the shaft G′ is turned in the direction indicated by the arrow, the skin is drawn slowly over the edge of the plate E and wound around the drum B by means of the feed arrangement I′ $I^2$ $I^3$ $I^4$ $I^5$. Every time the brush G passes over the fur at the edge of the plate E it draws over with it as much fur, together with the accompanying hairs, as have been released from the blade C during one revolution. As the brush leaves the fur the hairs, by reason of their stiffness and elasticity, spring up against the cutting-blade C. When the brush G
179½ has passed the line of motion of the plate *f*, this plate *f* passes on in its revolution and carries down the fur just brushed over out of reach of the cutting-blades. At the same time the cutting-blade D is carried forward and cuts off the hairs which have been released. The different positions of the brush G, plate *f*, and blade D to perform these operations are shown in Figs. 3 and 4, all the movements being performed by one revolution of the shaft G′. Now, each layer of fur, as it is brushed over, remains isolated until the plate *f* reaches it, as shown by the line *t*, Fig. 3. In this isolated

condition it has not sufficient strength to resist the elasticity of the hairs which have been brushed over with it, and which consequently instantly spring up within range of the cutting-blades. This isolated condition of a thin layer of fur is a very important feature of my invention, as by means of it I am enabled to get a perfect and complete separation of the hairs from the fur. To produce this isolated layer of fur it is necessary that the fur from which the hairs have been removed should be prevented from intermingling with the next layer of fur until the hairs of it are released, which I do in the following manner, viz: The brush N is placed in such position as to allow the plate *f* to pass through it at every revolution. This brush is partly submerged in the vessel of water O, and is revolved a little every time the plate *f* passes through it, by which means it is kept filled with water, so that the plate *f*, by passing through the brush, retains and conveys enough water to the fur every time it reaches it to cause it to adhere to the pelt.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. In a machine for unhairing furs, the method of forcing over the furs by means of a brush, in combination with a support for the fur and means for holding the fur down, substantially as herein described.

2. The method of holding the fur down by means of water or any equivalent fluid, substantially as herein described.

Signed at New York, in the county of New York and State of New York, this 30th day of January, A. D. 1884.

HENRY W. COVERT.

Witnesses:

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ALFRED H. DAVIS.

180 United States Patent Office.

JOHN W. SUTTON, of Brooklyn, New York.

## *Machine for Plucking Pelts.*

Specification forming part of Letters Patent No. 536,742, dated April 2, 1895. Application filed April 11, 1894. Serial No. 507,102. (No model.) Patented in England June 7, 1894, No. 11,102.

To all whom it may concern:

Be it known that I, John W. Sutton, a citizen of the United States, residing in Brooklyn, in the county of Kings and State of New York, have invented certain new and useful improvements in machines for plucking pelts, (patented in England June 7, 1894, No. 11,102,) of which the following is a specification.

This invention relates to certain improvements in the machine for plucking furs, for which letters patent were granted to me heretofore, No. 383,258, dated May 28, 1888, said improvements being designed with the view of overcoming some of the defects of the machine referred to, facilitating the working of the machine, adjusting the pelt quickly to the required position toward the operative parts of the machine and permitting the interruption of the cutting-off of the water-hairs whenever this is desired during the working of the machine.

The invention consists of a machine for removing the water-hairs from pelts of all kinds, which comprises a fixed stretcher-bar, means for stretching and intermittently feeding a pelt over said stretcher-bar, a rotary brush located above the stretcher-bar and near the edge of the same, a reciprocating guard-comb below the stretcher-bar, a rotary separating-brush likewise below the stretcher-bar, mechanism for removing the said brush and guard-comb into a position in upward and forward direction toward the edge of the stretcher-bar and over the portion of the pelt below the same, a vertically-reciprocating knife, a rotary knife arranged to cut off the projecting water-hairs in conjunction with the vertically-reciprocating knife, and a card arranged on the arm of the rotary knife at some distance from the same, so as to pass over the portion of the pelt in position on the stretcher-bar.

The invention consists, further, of mechanism for adjusting the apron to which the pelt is applied, so as to adjust the pelt quickly on the stretcher-bar and bring any portion of the pelt into proper position relatively to the working parts of the machine.

The invention consists, further, of certain operating mechanism connecting the driving-shaft with the reciprocating guard-comb and separating-brush, whereby the same are operated at the proper time.

The invention consists, further, of means for withdrawing the vertically reciprocating knife so as to lower it and prevent its action.

The invention consists, lastly, of certain mechanisms by which the motion is transmitted to the working parts of the machine, which mechanisms will be fully described hereinafter and finally pointed out in the claims.

(Here follow diagrams marked pp. 180 *a*, *b*, *c*, & *d*.)

In the accompanying drawings, figure 1 is a plan view of my improved machine for plucking pelts. Fig. 2 is a side-elevation of the same. Fig. 3 is a detail side-view, partly in section, of the mechanism for withdrawing the operating pawl and check-pawl from the ratchet-wheel by which the pelt is adjusted on the stretcher-bar. Fig. 4 is a vertical longitudinal section on line 4, 4, Fig. 1. Fig. 5 is likewise a vertical longitudinal section of a portion of Fig. 1, on line 5, 5, Fig. 1, showing the mechanism for lowering the vertically-reciprocating knife, so as to throw the same out of action. Fig. 6 is a detail vertical transverse section on line 6, 6, Fig. 1. Figs. 7, 8 and 9 are detail vertical sections showing the operating parts of the machine in their relative position toward the pelt on the stretcher-bar, said figures showing respectively the position of the parts before the cutting off of the water-hairs takes place, during the act of cutting them off, and after the same are cut off. Fig. 10 is a detail front-view of a portion of the guard-comb, arranged below the stretcher-bar, and Figs. 11 and 12 are respectively a vertical longitudinal section and a plan of the adjustable bearing for the rotary brush above the stretcher-bar.

Similar letters of reference indicate corresponding parts.

In the drawings A is the frame of the machine and A′ is the main driving-shaft which is journaled in suitable bearings of the frame A and provided with a fixed and a loose belt-pulley $A^2$ and $A^3$ upon either of which the driving-belt $A^4$ can be shifted by means of the belt-shifting lever $A^5$ that extends to the front or working end of the machine. A belt $A^6$ passes over a pulley $A^7$ on the shaft A′ and over a pulley $A^8$ on a shaft $A^9$ located at the working
180½ end of the machine, which shaft $A^9$ has a crank-handle $A^{10}$ for turning it, in case the machine is to be worked by hand for adjusting the different parts before power is applied to the machine. A pinion B on the main-shaft A′ engages a cog-wheel B′ and transmits rotary motion to the cam-shaft C, which by means of the bevel cog-wheels $B^2$ $B^2$ transmits rotary motion to a shaft $B^3$ which is mounted at one side of the main-frame, the shaft $B^3$ transmitting by the bevel cog-wheels $B^4$ $B^4$ rotary motion to a shaft $B^5$, mounted transversely at the working end of the machine. The shaft $B^5$ has radial arms $B^6$ to the ends of which the rotary blade D is bolted or screwed. A brush D′ of the same length as the blade D is supported by means of angle-pieces $D^2$ on the arms $B^6$ in such a manner that it is located a short distance from the cutting edges

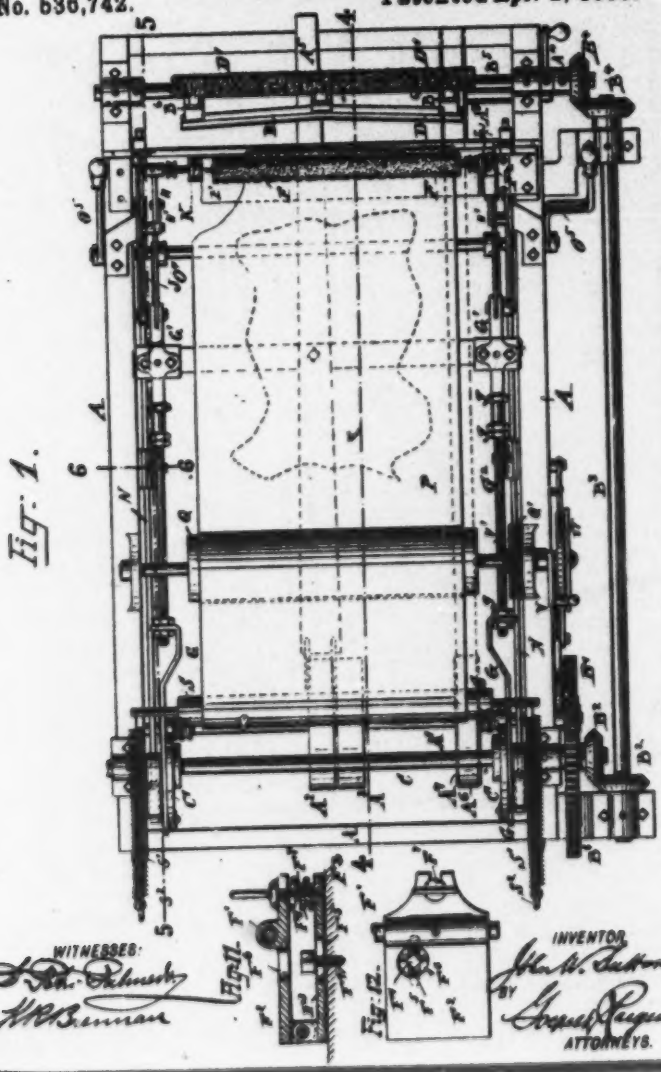
No. 92.
Cimiotte Co. } p. 180a
American Co. }

(No Model.) 4 Sheets—Sheet 1.

# J. W. SUTTON.

## MACHINE FOR PLUCKING PELTS.

No. 536,742. Patented Apr. 2, 1895.

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No. 192
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&
American Co
} p. 180 b

(No Model.) 4 Sheets—Sheet 2.

J. W. SUTTON.

MACHINE FOR PLUCKING PELTS.

No. 536,742. Patented Apr. 2, 1895.

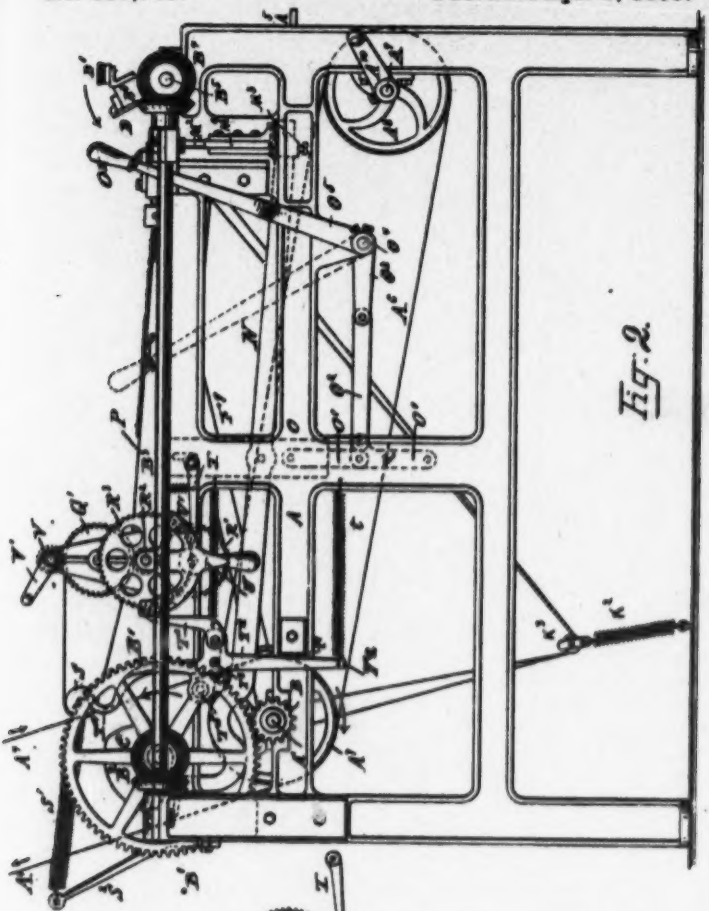

Fig. 2.

Fig. 3

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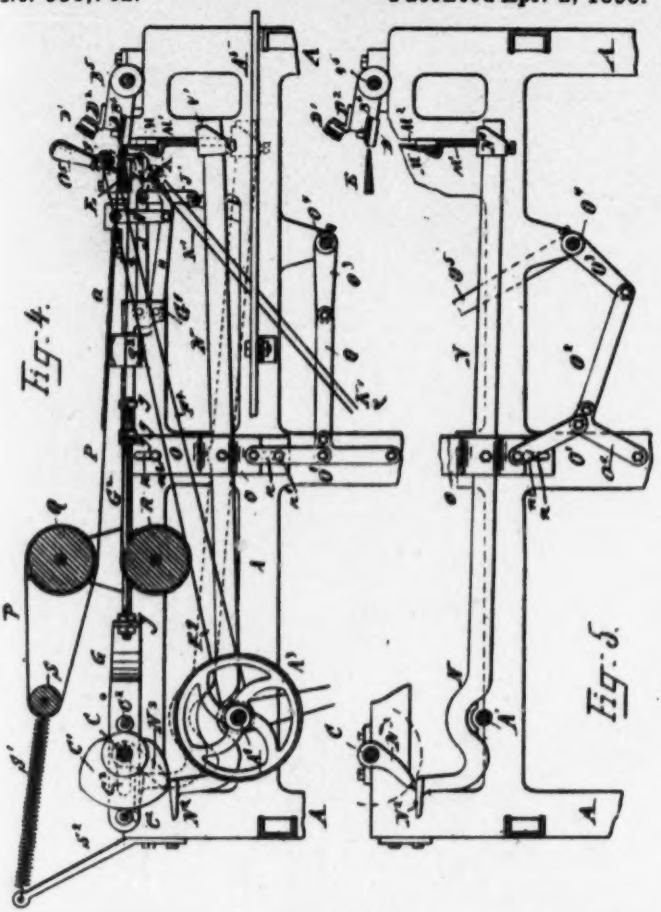
Cimiotti Co
v.
American Co
p. 180 c

(No Model.) 4 Sheets—Sheet 3.

J. W. SUTTON.

MACHINE FOR PLUCKING PELTS.

No. 536,742. Patented Apr. 2, 1895.



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(No Model.) 4 Sheets—Sheet 4.

# J. W. SUTTON.

## MACHINE FOR PLUCKING PELTS.

No. 536,742. Patented Apr. 2, 1895.

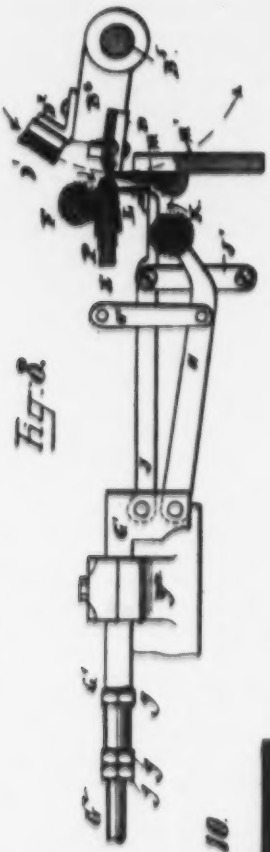

Fig. 8.

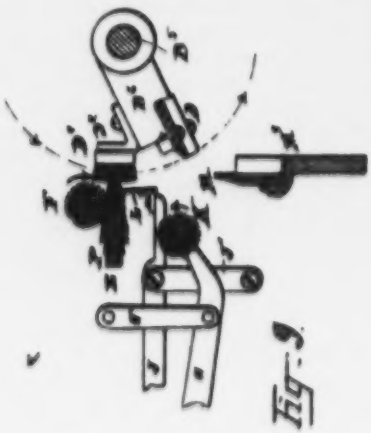

Fig. 9.

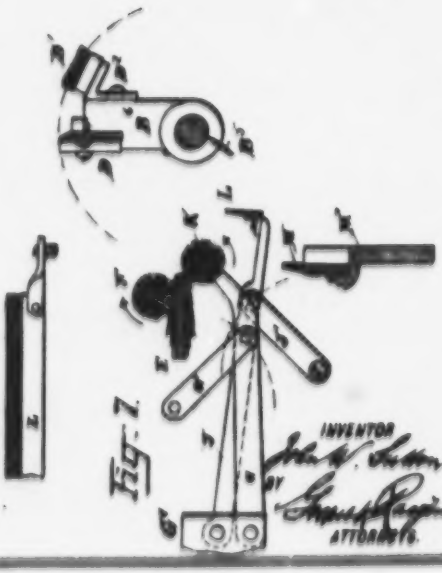

Fig. 7.



Fig. 10.

WITNESSES:

INVENTOR

ATTORNEYS.

of the blade D and so that the ends of its bristles extend slightly beyond the circle described by the cutting edge of the blade during the rotary movement of the same.

A knife-edged stretcher-bar E is fastened transversely on the machine-frame A, the edge of the stretcher-bar being a short distance from the circle described by the edge of the blade D, as shown in Figs. 7, 8 and 9. A rotary cylindrical brush F is arranged directly above the stretcher-bar E and at a short distance back of the edge of the same. The ends of the shaft F′ of said brush are mounted in stationary bearings on plates $F^2$, which are hinged to plates $F^3$ that are fastened by screws $F^4$ which pass through longitudinal slots $F^5$ in the plates $F^3$ into supports of the main-frame A, so as to permit the proper adjustment of the brush toward the edge of the stretcher-bar E. The hinged plates $F^2$ have apertures $F^6$ through which a wrench or other implement can be passed to tighten or loosen the screws $F^4$, as shown in Figs. 11 and 12. Thumb-screws $F^7$ pass through the notches in the free ends of the plates $F^2$ and screw into threaded bushings of the plates $F^3$, while helical springs $F^8$ are interposed between the plates $F^9$ $F^3$ and press the plates $F^3$ in upward direction. By turning the thumb-screws $F^7$ in one direction or the other, the bearings for the rotary brush F can be readily raised or lowered so as to adjust the brush according to the kind or condition of the pelt under treatment. The brush F is rotated by means of cords or belts $F^9$ and suitable pulleys from the main-shaft A′.

The cam-shaft C carries at each end a cam C′ which acts on anti-friction rollers $C^2$ projecting from the sides of horizontally-reciprocating bars G, which are guided by slots $G^3$ on the cam-shaft C. The bars G are connected by intermediate threated rods $G^2$ and nuts and jaw-nuts $g$ $g$, with cross-heads G′, said cross-heads being guided in brackets $g^2$ of the frame A. The rods $G^2$ and nuts $g$ $g$ serve for adjusting the distance of the cross-heads G′ from the shaft C. To the cross-heads G′ are pivoted the rear-ends of two lever-arms H and J, which are again connected by pivot-links H′ and J′ with fixed supports on the main-frame A, as shown in Figs. 4 and 7, by which the motion of the lever-arms H and J is properly governed. The free ends of the arms H are curved upward and provided with bearings in which the shaft of a cylindrical separating brush K is mounted, which brush is rotated from the main-shaft A′ by means of endless cords or belts K′ which pass over pulleys on the main-shaft and on the brush-shaft, said belts passing around idlers $K^2$ which are connected by tension-springs $K^3$ with the floor or other fixed point so that said belts are at all times kept taut, as shown in Fig. 2.

To the ends of the arms J is attached an upwardly-projecting metallic comb L, which is shown in detail in Fig. 10. A vertically-reciprocating knife M extends across the main-frame and is supported by a transverse knife-holder M′ which is guided in slotted ways $M^2$ in the sides of the main-frame A.

Elastic buffers $M^3$ of any suitable construction are provided on

the main-frame at the lower-end of the ways $M^9$, so as to cushion the knife-holder M′ when the knife is lowered and moved away from the stretcher-bar. The edge of the knife M is vertically below the edge of the stretcher-bar E, as shown in Fig. 7. The knife-holder M′ is supported on adjustable blocks N′ mounted on the front-ends of pivoted cam-levers N, one on each side of the main frame, which levers are provided at their rear ends with tappets $N^9$ that are actuated by cams $N^3$ on the cam-shaft C. Each cam-lever N is fulcrumed to slide-plates O which are guided by slots *n* on headed screws *n*′ at the inner sides of the frame A, as shown in Figs. 4 and 6. The lower ends of the slide-plates O are pivotally connected with the upper end of a toggle-lever O′, the lower end of which is pivoted to the main-frame A, as shown in Figs. 4 and 5, while the knuckle-joint is connected by a link $O^2$ with a fixed arm $O^3$ on a rock-shaft $O^4$, that is mounted on the main-frame provided at each end with a handle-lever $O^5$ for turning it. When the handle-lever $O^5$, the slide-plates O and the parts connecting the same are in the position shown in Fig. 5, the tappets $N^2$ of the levers N are out of path of the cams $N^3$ and the knife M is not reciprocated, but remains stationary in its lowermost position. When the slide-plates O are raised by placing the handle-lever $O^5$ in the position shown in Fig. 2, the tappets at the rear-ends of the levers N are placed into the path of the cams $N^3$ and the knife M is raised at the proper time and permitted to drop when the cams have passed over the tappets $N^2$ so that the front-ends of the levers N descend until the knife-holder M′ is arrested by the buffers $N^3$.

The apron P on which the pelt *a* to be treated is spread and fastened, is attached at its ends to two drums Q and R which
180] are mounted transversely on the main-frame and supported in suitable bearings of the same. The apron P passes from the roller Q over a tension-roller S supported by means of helical springs S′ on stationary arms $S^2$ of the main-frame A, then over and around the stretcher-bar E to the roller R. Cog-wheels Q′ and R′ are mounted on the shafts of the drums Q and R and are engaged by a pinion $R^2$ on a shaft carrying a ratchet-wheel $R^3$ that is engaged by check-pawl T pivoted to the main-frame A, while an actuating pawl T′ is pivoted to a lever $T^2$, which is fulcrumed at $T^3$ to the frame, and provided at its upper end with a curved part $T^4$ which is acted on by a roller $T^5$ on the cog-wheel B′. A spring *t* connects the lower end of the fulcrumed lever $T^2$ with the main-frame and presses the lever $T^2$ against a fixed buffer-bracket *t*′. The shaft of the ratchet-wheel $R^3$ also carries a pendent frame U which is provided with two arms having at their ends flanges U′ extending over the rim of the ratchet-wheel $R^3$, which flanges are provided with notches for receiving the ends of the pawls T T′ as shown in Figs. 2 and 3. When the frame U is swung into the position shown in Fig. 3, the flanges U′ engage the ends of the pawls and prevent them from acting on the teeth of the ratchet-wheel $R^3$. At each rotation of the cog-wheel B′ the roller $T^5$ engages the upper end of the lever $T^2$, oscillates the

same and moves the pawl T′ into one or more teeth of the ratchet-wheel $R^3$, so that when the roller $T^3$ has passed the end of the lever $T^2$, the spring *t* returns it to its former position and turns the ratchet-wheel $T^3$ by the pawl T′ which motion is transmitted by the pinion $R^3$ to the cog-wheels Q′ and R′ and drums O and R, so that the apron P is intermittently fed over the stretcher-bar E, being unwound from the drum Q and wound up on the drum R.

When the frame U hangs vertically, as shown in Fig. 2, the pawls T and T′ are not engaged by the notched flanges V′ and are free to engage the teeth of the ratchet-wheel $R^3$. When the frame U is moved into the position shown in Fig. 3, a pinion V which is in mesh with the cog-wheel Q′ can be turned by its crank-handle V′ and thereby the apron and the pelt thereon be shifted in either direction into any required position, as may be necessary for working the apron on one drum and unwinding it from the other.

The operation is as follows: The pelt *a* having been stretched and secured on the apron P and having been so adjusted that one end of the same is near the stretcher-bar E, the machine is started. At each rotation of the cam-shaft C, the pawl T′ is actuated and the ratchet-wheel $R^3$ turned for the distance of one tooth, whereby the roller Q is turned so as to unwind a short length of the apron while the roller R is turned in the opposite direction, so as to wind up a corresponding length of the apron. In this manner the apron and with it the pelt is fed intermittently over the edge of the stretcher-bar E so that narrow strips of the pelt are subjected successively to the action of the operating devices. During the forward motion of the pelt, the rotary brush F which is located above the stretcher-bar, exerts a very peculiar action upon the fur and the stiff hairs of the pelt. It stirs up the fur and hairs and causes the hairs to rise and free themselves from the surrounding fur or soft hairs, which latter are straightened by the continuous action of the quickly-rotating brush and laid down flat on the pelt. The rotary brush K below the stretcher-bar is next moved by the lever-arms H and cross-heads G′ in forward and upward direction as shown in Fig. 7, so as to brush back the fur and separate it from the stiff hairs which project from the pelt in the direction of the stretcher-bar. The separating-brush K is then moved in backward and downward direction, so as to be out of the path of the guard-comb, which is moved from its lowermost position in upward and backward direction until it arrives at the under side of the pelt close to the edge of the stretcher-bar, as shown in Fig. 8, in which position it retains the soft fur, and protects it against the action of the cutting knives. The knife M is next raised until its cutting edge is in close proximity to the edge of that portion of the pelt which is at the time in front of the edge of the stretcher-bar. When the rotary blade D arrives with the cutting edge in front of the stretcher-bar, as shown in Fig. 8, the cutting edges take hold of the stiff hairs and shear them close to the skin of the pelt, without cutting off any portion of the soft hair. The apron is next actuated and the next adjacent strip of pelt fed forward and

placed over the edge of the stretcher-bar. The vertical cutting knife recedes then from the stretcher-bar while the rotary knife moves on until the brush D′ arrives in front of the pelt and sweeps across that part in front of the edge of the stretcher bar. The brush D′ draws out the fur and hairs from under the upper rotary brush and places them in proper condition for the action of the lower separating-brush which is then moved up toward the lower edge of the pelt so as to brush back the fur below the edge and separate it from the stiff hairs, while the upper brush keeps down the fur above the edge of the stretcher-bar. The separating brush is then moved back again and the guard-comb moved up so as to protect the fur while the next cutting action of the knives takes place and so on.

As compared to my prior patent before mentioned, the novel and important feature of the present construction is the substitution for the stationary card above the stretcher-bar, of a rotary brush which is placed close to the edge of the stretcher-bar and which serves to brush the fur back from the edge of the bar while it allows the stiff hairs to rise and project above the fur. When the card which was supported back of the rotary knife in my prior machine, passed the
180½ edge of the stretcher-bar, it drew out from under the stationary card all the fur and hair on that section of the pelt that were on the edge of the bar. Some of the fur however was only partly drawn out, owing to the varying thicknesses of the pelts. This partly drawn out fur lay in the form of a loop which stood out far enough to be reached by the knives but not far enough to be drawn down by the rotary brush below the stretcher-bar, and so was cut off by the knives. With the rotary brush in place of the stationary card heretofore used by me, this looped fur is drawn back and laid down before the knives reach it so that the cutting of the fur is prevented and only the stiff hairs are removed.

When a pelt is put on the apron, and the machine is started it requires a few rotations of the shafts until a perfect separation of the fur from the stiff hairs on the front section of the pelt acted upon takes place. If the knives were to act on this portion of the pelt it would be injured as some of the fur would be cut off with the hairs. Formerly guard-plates of thin metal were used to prevent the cutting of this fur, but they covered up the pelt so that the progress of the work could not be seen. For dispensing with the covering plates, the mechanism of interrupting the motion of the reciprocating knife is introduced, which has the advantage that the knife is prevented from rising until the separation of the fur and hairs is accomplished by the other operative parts of the machine. As soon as this separation is obtained, the reciprocating knife is thrown instantly into action by moving the handle-lever $G^5$ forward, and setting its actuating mechanism in motion. This has also the further advantage that the action of the cutting knives can be instantly interrupted whenever this should be required, in case one or the other of the brushes or the rotating card or the guard-comb should fail to properly perform its work, or when for some reason

or another a portion of the pelt should not be subjected to the action of the cutting knives. The entire machine is thereby more completely under the control of the attendant and performs its work in a quicker, better and more reliable manner than the machine heretofore patented by me.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. The combination of a stretcher-bar, means for intermittently feeding a pelt over the stretcher-bar in one direction, a rotary brush located near the edge of the stretcher-bar and in contact with that portion of the pelt moving toward the edge of the stretcher-bar, means for continuously rotating said brush reversely to the direction of the movement of the pelt, and means for removing the hairs projecting from the pelt in front of the working edge of the stretcher-bar, after the brush has operated on the pelt, substantially as set forth.

2. The combination of a stretcher-bar, means for intermittently feeding a pelt over the stretcher-bar in one direction, a rotary brush located near the edge of the stretcher-bar and in contact with that portion of the pelt moving toward the edge of the stretcher-bar, means for continuously rotating said brush reversely to the direction of motion of the pelt, a vertically reciprocating knife, a rotary knife, said knives co-operating to remove the hairs projecting from the pelt in front of the working edge of the stretcher-bar, after the rotary brush has operated on the pelt, and a brush applied to the supporting-arms of the rotary knife back of the same, substantially as set forth.

3. The combination of a stretcher-bar, means for intermittently feeding a pelt over the stretcher-bar in one direction, a rotary brush located near the edge of the stretcher-bar and in contact with that portion of the pelt moving toward the edge of the stretcher-bar, means for continuously rotating said brush reversely to the direction of movement of the pelt, a rotary separating-brush below the stretcher-bar and a mechanism by which the separating-brush is moved upward and forward into a position close to the working edge of the stretcher-bar, substantially as set forth.

4. The combination of a fixed stretcher bar, means for intermittently feeding the pelt over the working edge of the stretcher bar, a rotary brush above and in close proximity to the stretcher bar, said brush being arranged back of the working edge of the stretcher bar, means for rotating said brush reversely to the direction of motion of the feeding means, a rotary separating brush below the stretcher bar, a reciprocating guard comb also below the stretcher bar, mechanism whereby the separating brush is moved upward and forward to the working edge of the stretcher bar and back again and mechanism by which the guard comb is moved upward and under the stretcher bar near the working edge of the same, substantially as set forth.

5. The combination of a stretcher-bar, means for intermittently

feeding a pelt over the working edge of the same, a rotary brush located near the edge of the stretcher-bar and in contact with that portion of the pelt moving toward the edge of the stretcher-bar, a cam-shaft, cams on said shaft, reciprocating cross-heads guided on the main-frame and operated by said cams, lever-arms pivted to said cross-heads below the stretcher-bar, a rotary brush mounted on the ends of one set of arms, a comb mounted on the ends of the other set of arms, and pivot-links, connecting the arms with the frame, whereby said brush and comb are moved toward and away from the edge of the stretcher-bar, substantially as set forth.

6. The combination, of a stretcher-bar, means for intermittently feeding a pelt over the edge of said bar, a rotary brush mounted above the stretcher-bar and near the edge of the same, hinged
180½ plates on which the shaft of said brush is mounted, springs for pushing said hinged plates upward, screws for pressing them downward, and means for adjusting the said plates and brush in horizontal direction, substantially as set forth.

7. The combination, of a stretcher-bar, means for intermittently feeding a pelt over the same, a rotary brush above the stretcher-bar, a rotary separating-brush below the same, a guard-comb also below the stretcher-bar, a rotary cutting blade, a vertically-reciprocating-knife, and mechanism for throwing the reciprocating-knife in or out of action, substantially as set forth.

8. The combination, of a stretcher-bar, means for intermittently feeding a pelt over the same, a rotary brush above the stretcher-bar, a rotary brush below the same, a guard-comb, a rotary cutting knife, a vertically cutting knife, a cam shaft, cams on the same, intermediate lever-arms for reciprocating said knife, slide-plates to which the lever-arms are fulcrumed, and means for raising or lowering said slide-plates so as to throw the lever-arms of the vertical knife in or out of action, substantially as set forth.

9. The combination, of a stretcher-bar, an apron stretched over the same, to which the pelt is attached, drums to which the apron is attached, a pawl and ratchet-mechanism connected with said drums, a cam-shaft, means for actuating said pawl and ratchet-mechanism from said cam-shaft, a pendent frame pivoted to the shaft of the ratchet-wheel and provided with guard-flanges for engaging the actuating pawl and check-pawl of the ratchet-wheel and throwing said pawls out of engagement with said ratchet-wheel, and means for rotating the drums when said pawls are out of engagement so as to permit the quick adjustment of the apron on the drums in either direction, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

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Witnesses:

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K. R. BRENNAN.

No. 618,625. Patented Jan. 31, 1899.

J. W. SUTTON.

MACHINE FOR PLUCKING PELTS.

(Application filed July 20, 1898.)

(No Model.) 4 Sheets—Sheet 1.

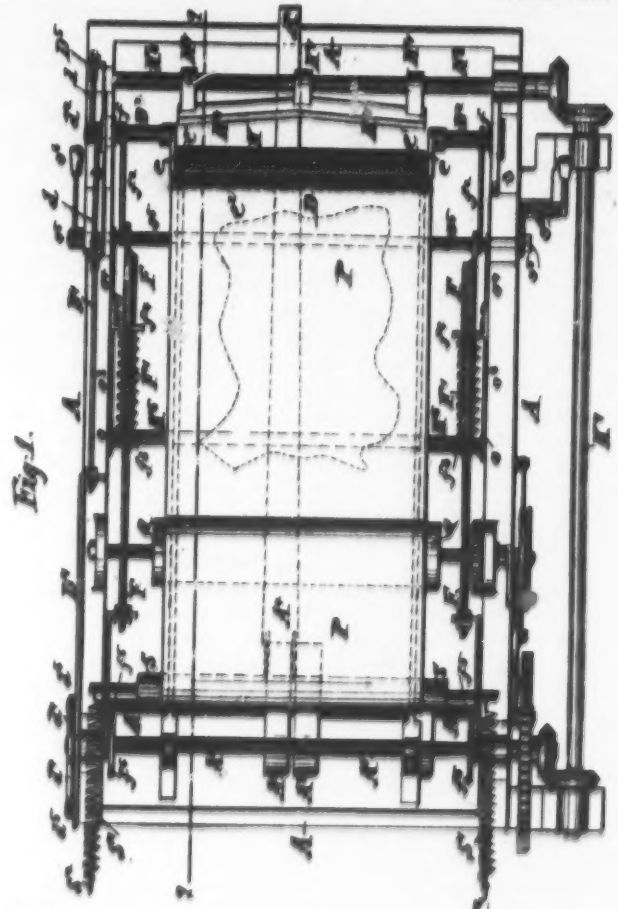

Fig. 1.

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No. 618,025. Patented Jan. 31, 1899.

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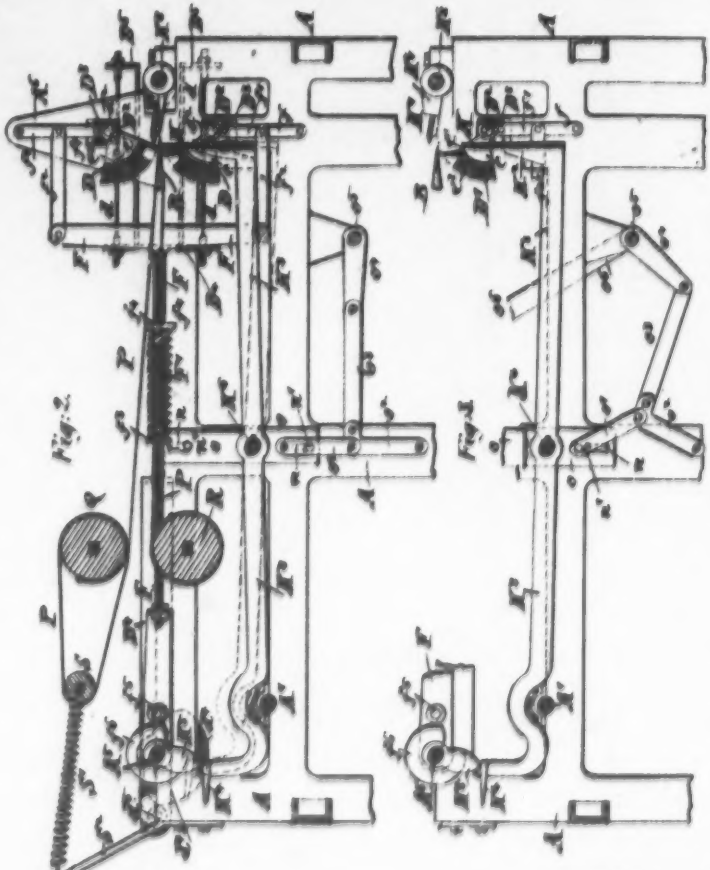
MACHINE FOR PLUCKING PELTS.

(Application filed July 30, 1898.)

(No Model.) 4 Sheets—Sheet 2.

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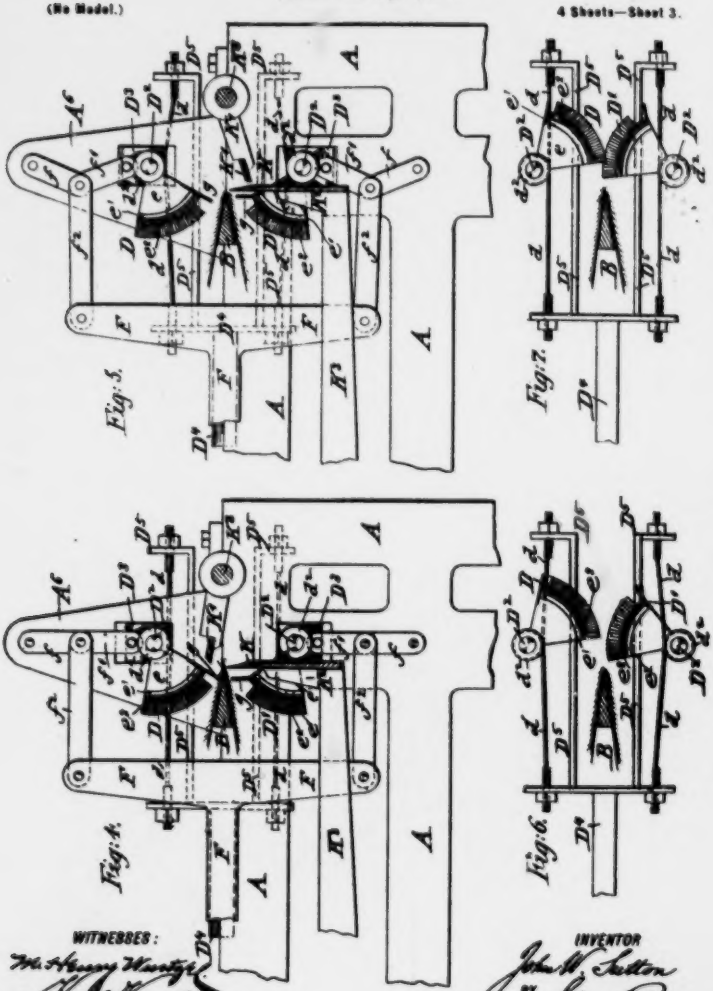


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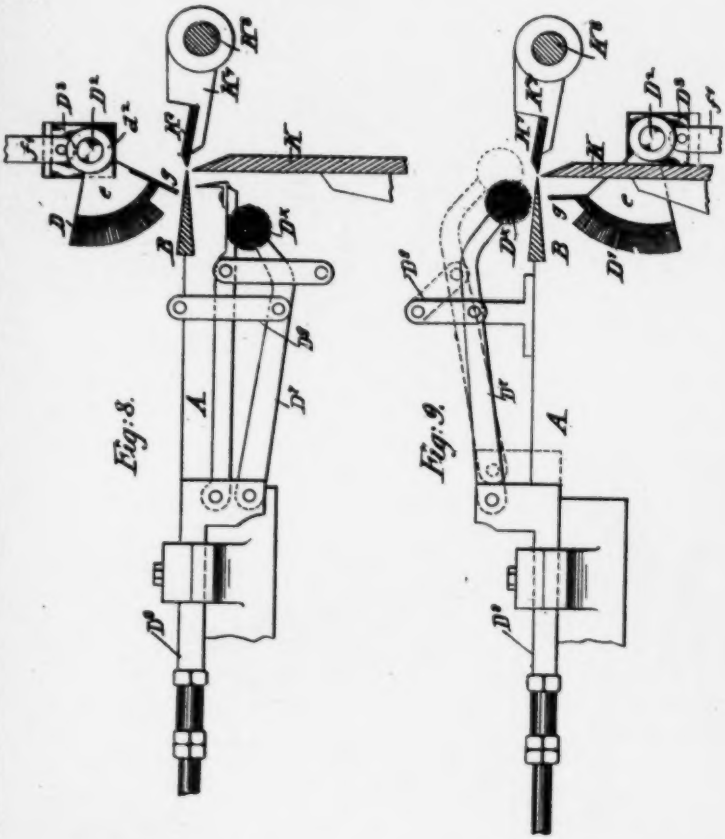
(No Model.) 4 Sheets—Sheet 4.

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181

United States Patent Office.

JOHN W. SUTTON, of New York, N. Y.

*Machine for Plucking Pelts.*

Specification forming part of Letters Patent No. 618,625, dated January 31, 1899. Application filed July 30, 1898. Serial No. 687,372. (No model.)

To all whom it may concern:

Be it known that I, John W. Sutton, a citizen of the United States, residing at New York, borough of Brooklyn, in the State of New York, have invented certain new and useful improvements in machines for plucking pelts, of which the following is a specification.

This invention relates to certain improvements in machines for plucking pelts of that class in which the pelt is intermittently moved forward over the edge of a fixed stretcher-bar and subjected at both sides of the same to the action of brushes, after which the projecting water-hairs are cut off by the joint action of a vertically-reciprocating and a rotary knife on the same. Such a machine is described in the letters patent granted heretofore to me, No. 536,742, dated April 2, 1895. In this patent rotary brushes, one located above and the other below the stretcher-bar, are employed and passed over the pelt stretched over the edge of the stretcher-bar, so as to brush back the soft fur and protect the same against the cutting action of the knives. In connection with the lower brush was used a reciprocating guard-comb, to which the required motion was imparted after the lower brush had accomplished its work.

The object of this invention is to simplify the construction of the pelt-plucking machine by using in place of the rotary brushes rotary reciprocating brushes; and the invention consists of the combination, with a stationary stretcher-bar and with means for intermittently feeding the pelt over the edge of said stretcher-bar, of segmented brushes having guard-combs at their ends, means for imparting a rotary reciprocating motion to said brushes, and a reciprocating and a rotary cutting-knife by which the water-hairs are cut off at the proper time.

The invention consists, further, of a certain mechanism by which rotary reciprocating motion and mechanism by which the motion toward and away from the stretcher-bar is imparted to said segmented brushes; and the invention consists, lastly, of certain details of construction which will be fully described hereinafter and finally pointed out in the claims.

(Here follow diagrams marked pp. 181 *a*, *b*, *c*, & *d*.)

In the accompanying drawings, figure 1 is a plan view of my improved machine for plucking pelts. Fig. 2 is a vertical longitudinal section of the same on line 2 2, Fig. 1. Fig. 3 is likewise a vertical longitudinal section on line 2 2, Fig. 1, showing the mechanism for moving the vertically-reciprocating knife in or out of action in a different position from Fig. 2, other parts being omitted for clearness. Figs. 4 and 5 are detail sections drawn on a larger scale and showing the position of the segmental brushes and cutting-knives, respectively, immediately before and after the water-hairs are cut off. Figs. 6 and 7 are detail sections showing, respectively, the positions of the brushes before the next cutting action and preparatory to combing back the soft fur of the pelt on the stretcher-bar; and Figs. 8 and 9 are detail vertical longitudinal sections showing two modifications of my improved construction, Fig. 8 showing a rotary brush in place of the lower rotary reciprocating brush, and Fig. 9 a rotary brush in place of the upper rotary reciprocating brush.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the main frame of the machine, and A′ the driving cam-shaft from which the different motions are imparted to the different parts of the machine. The driving-shaft A′ is journaled in suitable bearings at the rear part of the frame A and provided with a fixed pulley $A^2$ and a loose pulley $A^3$, upon either of which the driving-belt can be shifted by a suitable belt-shifting lever $A^4$, that extends to the front or working end of the machine. A stationary knife-edged stretcher-bar B is supported transversely on the frame A near the working end of the same. The pelt is spread and fastened onto an apron P, which is passed over the stretcher-bar and attached at its ends to two drums Q and R, which are mounted transversely on the main frame A and supported in suitable bearings of the same. The apron P passes from the roller Q over a tension-roller S, which is supported by means of helical springs S′ on stationary arms $S^2$ of the rear end of the main frame A and then over on the edge of the stretcher-bar to the lower drum R.

An intermittent motion is imparted to the drums Q and R by
181¼ suitable pawl-and-ratchet mechanisms, so that the apron and pelts are moved by an intermittent or step-by-step motion over the edge of the stretcher-bar in the manner well known in pelt-plucking machines. Above and below the stretcher-bar B are arranged segmental brushes D D′, which are applied to short shafts $D^2$, that turn in bearings of vertically-movable journal-boxes $D^3$, guided in slots of the main frame A. The shafts $D^2$ are provided at one side of the main frame A each with a small pulley $d^2$, which pulley is moved by means of two straps *d*, that are fastened at one end to said pulley, one strap going half-way around the pulley and extending to the T-shaped end of the slide-bar $D^4$, while the other strap goes half-way around the pulley in the opposite direction and is attached to the outer end of a bracket-arm $D^5$, that is mounted on the T-shaped end of the slide-bar $D^4$, as shown in Fig. 2. These straps $d^2$ are applied to a pulley on each shaft $D^2$ at the outside of the main frame of the

machine. The slide-bar $D^4$ receives reciprocating motion from a cam $d^4$ on the cam-shaft $A^5$ at the rear end of the machine, which shaft receives rotary motion from the driving-shaft A′ by suitable gear-wheel transmission, as shown in Fig. 1. The cam $d^4$ acts on two antifriction-rollers $d^5$ on the slide-bar $D^4$ so as to impart a positive reciprocating motion to the same, so as to move the brushes at the proper time by the pulleys and straps described.

The segmental brushes D D′, which are located, respectively, above and below the stretcher-bar B, are formed of quadrants of a circle *e*, which are attached to the inner ends of the short shafts $D^2$ and flanges *e′*, and of strips of wood $e^2$, attached to said flanges. Each strip is provided with tufts of bristles and each brush composed of a number of such strips. To the front edge of each brush-supporting quadrant *e* is attached a guard-comb *g*, between which and the brush a small space is formed. Besides the rotary reciprocating motion imparted to the brushes D D′ by the reciprocating slide-bar and the straps applied to the pulleys at the ends of the short shafts, a vertically-reciprocating motion is imparted to the brushes at the proper time, so as to be moved toward or away from the stretcher-bar. This motion is imparted to the brushes by means of two sets of toggle-levers *f f′*, one at each side of the machine, and two additional slide-bars F, having T-shaped heads, as shown in Figs. 2, 4, and 5. One link of each toggle-lever *f f′* is pivoted to the journal-boxes of the brushes, while the other link is pivoted to upright standards $A^6$ on the main frame, the common pivots of both toggle-levers *f f′* being connected by additional pivot-links $f^2$ with the ends of the T-shaped heads of the slide-bar, as shown clearly in Figs. 4 and 5. On each slide-bar is arranged, between a stationary collar $f^3$ on the same and a bracket $f^4$, attached to the side of the main frame A, a strong helical spring F′, by which an antifriction-roller $f^5$ at the rear end of the slide-bar F is held in contact with a cam $f^6$ on the cam-shaft $A^5$. The cam is so shaped that at the proper time the slide-bar F is quickly moved back, so as to place the toggle-levers *f f* at an angle toward each other and move the segmental brushes D D′ quickly away from the stretcher-bar, as shown clearly in Fig. 5. When the slide-bar F is moved by the cam $f^6$ in forward direction, the links of the toggle-joint are placed in line with each other, so that the brushes D D′ are moved toward and into proximity to the stretcher-bar, as shown in Fig. 4.

In front of the stretcher-bar B are arranged two knives, a vertically-reciprocating knife K and rotating knife K′. The vertically-reciprocating knife K is arranged below the edge of the stretcher-bar B. It is attached to elbows $K^2$ at the front ends of cam-levers $K^3$, which carry tappets $K^4$ at their rear ends, as shown in Figs. 1, 2, and 3. The tappets are acted upon by cams $K^5$ on the cam-shaft $A^5$. The cam-levers $K^3$ are keyed to a transverse shaft $K^6$, which is supported in boxes of slide-plates *o*, that are guided by slots on headed screws *n′* on the inner sides of the main frame A, as shown in Figs. 2 and 3. The lower ends of the slide-plates *o* are connected

by pivot-links $o'$ with the angles of elbow-levers $o^2$, the lower ends of which are pivoted to the main frame A, while their upper ends are connected by links $o^3$ to fixed arms $o^4$ of a shaft $o^5$, that turns in bracket-bearings of the main frame and is provided at one end with a handle-lever $o^6$. When the handle-lever $o^6$, slide-plates $o$, and the parts connecting the same are in the position shown in Fig. 3, the tappets $K^4$ of the cam-levers $K^3$ are out of the path of the cams $K^5$, and consequently the vertically-reciprocating knife K is not operated by the same, but remains stationary in its lowermost position. When the slide-plates $o$ are raised by placing the handle-lever $o^6$ in the proper position, the tappets at the rear ends of the cam-levers $K^3$ are placed in the path of the cams $K^5$, so that the knife K is raised at the proper time, it being permitted to drop when the cams have passed over the tappets, so that the front ends of the cam-levers $K^3$ descend and move thereby the knife K clear of the lower brush D', as shown in dotted lines in Fig. 2.

The rotary cutting-knife K' produces, in connection with the vertically-reciprocating knife K, the cutting off of the water-hairs projecting from the pelt at the proper time. The rotary cutting-knife K' is attached to radial arms $K^7$, which are keyed to a transverse shaft $K^8$, that turns in bearings of the main frame A and which receives rotary motion by an intermediate shaft $K^9$ and suitable bevel-gear transmissions from the cam-shaft $A^5$.

The motion of the segmental brushes over the pelt that is stretched over the edge of the stretcher-bar, and the motion reciprocating and rotary cutting-knives are illustrated in Figs. 4, 5, 6, and 7,
181½ in which four different positions of these parts are shown.

Fig. 4 shows the parts in position immediately before the water-hairs projecting from the edge of the pelt are cut off. In this position the segmental brushes D D' are moved in backward direction over the soft fur at the upper and lower sides of the pelt, the guard-combs being in position on the same, so as to retain the fur in position. The vertically-reciprocating knife K is close to the edge of the stretcher-bar, while the cutting-knife is approaching thereto for cutting off the water-hairs at the moment when it passes the edge of the vertical knife. As soon as the water-hairs are cut off and the rotary knife is below the edge of the stretcher-bar, as shown in Fig. 5, the quick backward motion of the slide-bar F under the influence of their helical springs moves the journal boxes of the bruses, and thereby the brushes, quickly away from the stretcher-bar, as shown in Fig. 5, so as to clear the pelt and permit them to be oscillated in forward direction. While the brushes are in this position, away from contact with the soft fur, they are moved into the position shown in Fig. 6 by the forward motion of the T-shaped end of the outer slide-bar $D^4$ and the action of the straps $d$ on the pulleys $d'$. The toggle-levers $f$ $f$ are then actuated again to be placed in line with each other by the forward motion of the slide-bar F under the influence of their cams. As thus the brushes D D' move toward each other still in outward position, as shown in Fig. 7, the back-

ward movement of the slide-bar $D^4$ on the outside of the frame moves the other straps $d$ and pulleys $n'$ in opposite direction, and brings thereby the brushes back into their former inward position, as shown in Fig. 4. As the lower brush is longer than the upper brush, it acts first on the soft hair on that part of the pelt that has just been placed in front of the edge of the stretcher-bar so as to carry it below the stretcher-bar, while when the upper brush reaches the pelt it brushes back the fur on the upper side of the stretcher-bar and holds it in position by means of its comb, while the comb of the lower brush acts in the same way, allowing the water-hairs to rise through between the teeth of the combs and project in front of the edge of the stretcher-bar, as shown in Fig. 4. The vertical cutting-knife is then moved up to the edge of the stretcher-bar, while the rotary knife meets it and cuts off the water-hairs. The length of the vertical knife is slightly shorter than the distance between the quadrants on the short shafts on which the brushes are supported, so that it can move freely up and down between said quadrants.

Instead of using a segmental rotary reciprocating brush at both sides of the stretcher-bar the lower segmental brush $d'$ may be replaced by a rotary and forwardly and backwardly moving brush $D^x$, as shown in Fig. 8, said rotary brush being operated by a suitable mechanism forming no part of the present invention. In Fig. 9 the rotary brush $D^x$ is shown as arranged above the stretcher-bar in place of the segmental rotary reciprocating brush D. In both of these figures—namely, 8 and 9—the brush $D^x$ is shown as mounted upon a lever-frame $D^7$, which is pivoted to a suitably-actuated slide-frame $D^8$, guided on the frame of the machine, the said lever being suspended in proper position by means of a pivoted link $D^9$, so that as the said slide-frame reciprocates the brush $D^x$ will be moved to and from the stretcher-bar B.

The operation of my improved pelt-plucking machine is as follows: The pelts having been stretched and secured to the apron P, the latter is so adjusted that one end is near the stretcher-bar B, after which the machine is started. At each rotation of the cam-shaft the pelt is fed for a short distance by the pawl-and-rachet mechanism over the edge of the stretcher-bar, and as one narrow portion or strip of pelt after the other is moved over the edge of the stretcher-bar it is acted upon by the segmental brushes and the cutting-knives. During the motion of the pelt the segmental brushes are moved in backward direction and passed over the pelt quickly, respectively above and below the stretcher-bar, so as to brush down the soft hairs, which are then retained by the guard-combs that are then located near the edge of the stretcher-bar. The stronger water-hairs are not retained by the combs and pass through the teeth of the comb, so as to project from that portion of the pelt which is located at the time on the edge of the stretcher-bar. The cutting-knives are then actuated and cut off the water-hairs. The brushes are then moved quickly away from the pelt while it is in this position and then moved in forward direction, clearing both sides of the pelt, are approached

toward each other while in their forward position, and are then returned in backward direction, so as to again brush down the soft hair and prepare the next narrow portion of the pelt that has in the meantime been moved over the edge of the stretcher-bar for the action of the cutting-knives. The action of the cutting-knives is the same as in the machine heretofore patented to me, the vertical knife being raised until its cutting edge is in close proximity to that portion of the pelt which is at that time in front of the edge of the stretcher-bar. When the rotary knife arrives in front of the stretcher-bar, the cutting edges take hold of the stiff water-hairs and shear them off close to the skin of the pelt without cutting off any of the fur which is retained by the guard-combs. The apron is then actuated and the next adjusted strip of pelt placed over the edge of the stretcher-bar. The vertical knife then recedes from the stretcher-bar, while the rotary knife moves so as to complete its rotary motion. The brushes are then separated and moved into their outward position, then again approached toward each other and
181¾ returned to their forward position, so as to brush again over the pelt above and below the stretcher-bar and present the next set of stiff water-hairs to the action of the cutting-knives, and so on.

By the use of rotary reciprocating brushes at both sides of the pelt in connection with the cutting-knives the construction of my pelt-plucking machine is considerably simplified and rendered more reliable, especially as the carding-brush heretofore supported at the rear of the rotary knife can be entirely dispensed with, while the independent guard-combs and their actuating mechanisms are also entirely dispensed with.

Having thus described my invention, I claim as new and desire to secure by letters patent—

1. The combination of the stretcher-bar, means for intermittently feeding a pelt over the stretcher-bar, a segmental brush near the edge of the stretcher-bar, means for imparting an intermittent rotary reciprocating motion to said brush, means for imparting motion toward and away from the stretcher-bar, and means for removing the stiff hairs projecting from the pelt in front of the edge of the stretcher-bar after the brush has operated on the pelt, substantially as set forth.

2. The combination of a stretcher-bar, means for intermittently feeding a pelt over the stretcher-bar, segmental brushes located respectively above and below near the edge of the stretcher-bar, means for imparting intermittent rotary reciprocating motion to said brushes, means for moving said brushes away from and toward said stretcher-bar, and means for removing the stiff hairs projecting from the pelt in front of the edge of the stretcher-bar after the brushes have operated on the pelt, substantially as set forth.

3. The combination of a stretcher-bar, means for intermittently feeding a pelt over the stretcher-bar, segmental brushes located above and below the edge of the stretcher-bar, a guard-comb at one

end of each of said brushes, mechanism for imparting an intermittent rotary reciprocating motion to said brushes, mechanism for imparting a vertically-reciprocating motion to said brushes, so as to move them toward or away from the stretcher-bar, and means for removing the stiff hair projecting from the pelt in front of the edge of the stretcher-bar, substantially as set forth.

4. The combinatioa of a stretcher-bar, means for intermittently feeding a pelt over the stretcher-bar, segmental brushes located respectively above and below the edge of the stretcher-bar, shafts attached to said brushes, journal-boxes for said shafts, means for imparting a rotary reciprocating motion to the brushes toggle-levers for raising or lowering said journal-boxes, spring-actuated slide-bars having T-shaped ends connected with said toggle-levers, and a cam-shaft having cams for actuating said slide-bars so as to move the brushes toward or away from the stretcher-bar, substantially as set forth.

5. The combination of a stretcher-bar, means for intermittently feeding a pelt over the same, segmental brushes located respectively above and below the edge of the stretcher-bar, supporting-shafts for said brushes, pulleys on said shafts, straps extending around said pulleys, slide-bars having T-shaped heads, brackets on said heads, said straps being attached at opposite ends to said brackets, and a cam-shaft having cams for actuating said slide-bars and imparting vertically-reciprocating motion to the brushes, substantially as set forth.

6. The combination of a stretcher-bar, means for intermittently feeding a pelt over the bar, segmental brushes located above and below the edge of the stretcher-bar, said brushes being provided with guard-combs at one end, means for imparting intermittently rotary reciprocating motion to said brushes, means for imparting a reciprocating up-and-down motion to said brushes toward and away from said stretcher-bar, a vertical-reciprocating cutting-knife, and a rotating cutting-knife, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in the presence of two subscribing witnesses.

JOHN W. SUTTON.

Witnesses:

PAUL GOEPEL,
M. HENRY WURTZEL.

182 A. D. 1881, 28th June, No. 2836.

*Machinery for Removing Coarse Hair from Fur.*

Letters Patent to William Robert Lake, of the firm of Haseltine, Lake & Co., patent agents, Southampton buildings, London, for an invention of "improvements in machinery for removing the stiff or coarse hairs from fur." A communication from abroad by François Lambert and Joseph Kokesch, both of the city and State of New York, United States of America.

Complete specification filed by the said William Robert Lake at the office of the Commissioners of Patents on the 28th June, 1881.

William Robert Lake of the firm of Haseltine, Lake, & Co., patent agents, Southampton buildings London. "Improvements in machinery for removing the stiff or coarse hairs from fur." A communication from abroad by François Lambert and Joseph Kokesch, both of the city and State of New York, United States of America.

This invention has for its object the removal of the stiff hairs from the fur or dressed skins.

In the common method of performing this operation the skin, or a portion of it, is folded over the finger of one hand and then the fur is blown away from around the standing hairs, and while thus separated, they are clipped off with a pair of scissors close to the skin, but this process is very tedious and laborious and this invention is designed to supercede it by furnishiug a machine which is so organized as to perform the work automatically and rapidly, requiring an attendant only for the introduction of the skins to the machine, and for setting the latter in motion.

182½ The said invention consists chiefly in the combination of parts comprising a holding device for supporting the skin, a brushing or combing agent for drawing the fur away from the hairs, and a clipping or removing device to remove them when so separated from the surrounding fur as hereinafter specified.

In the accompanying drawing.

(Here follows diagram marked p. 182*a*.)

Figure 1 is an elevation of one end of a machine constructed according to this invention showing all the operating parts, and the fur under the action of the separating brush.

Figure 2 is a similar view of portions of the said machine, with the hairs under the action of the cutters, or when separated from the surrounding fur.

A is the end plate of the frame of the machine, drawn to about one-third the actual size. At the other end of the said machine is

no. 192
Cimiotte Co.
v
American Co
} p. 182a

A.D. 1881. JUNE 28. № 2836.
LAKE'S COMPLETE SPECIFICATION.

1 SHEET)

FIG 1.

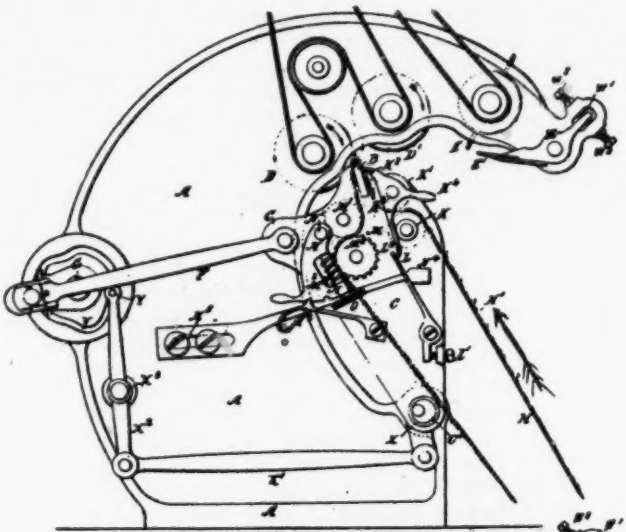
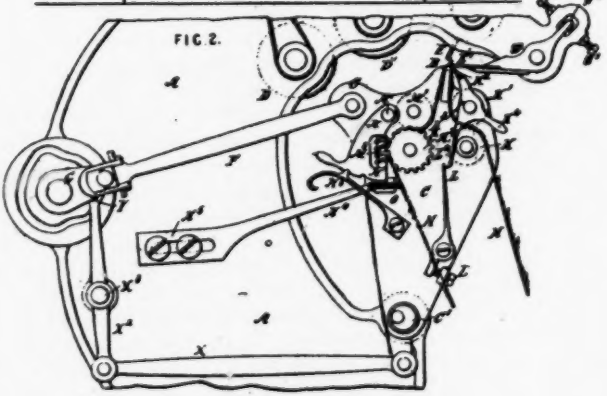
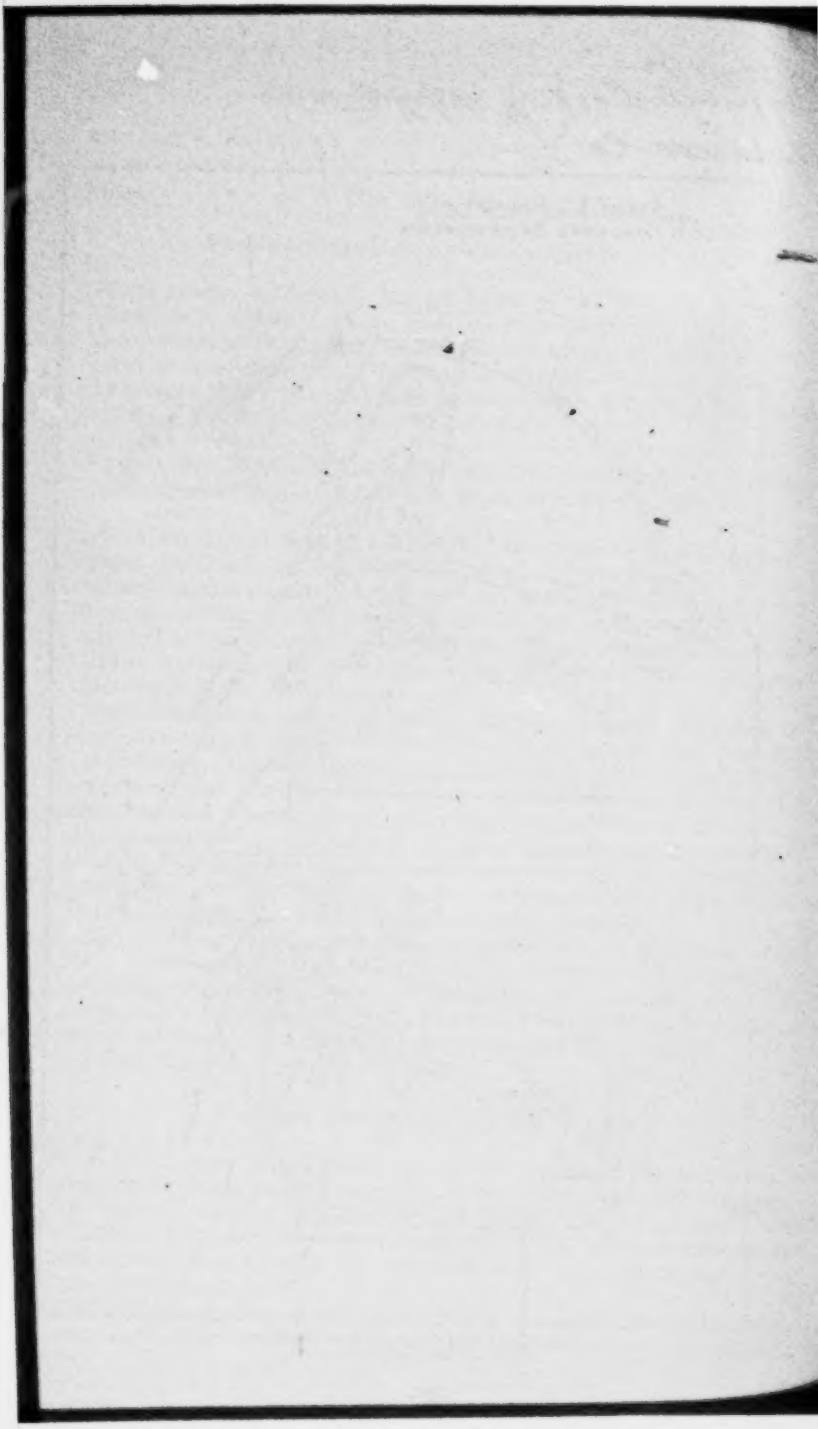


FIG 2.



Malby & Sons, Photo-Lith.

London: Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE
Printers to the Queen's most Excellent Majesty. 1881.



another plate of the same form, and the two are connected by rods and nuts on the outer ends to hold them at proper positions apart to support the working parts of the machine.

The width of the machine may be made according to the width of the skins to be treated, and hence the support for the skin. The brushes, and the cutters, may be made of any required length to reach across the skin.

The supporting device for the skin is shown at B, and consists of a bar whose upper edge is slightly rounded to resemble the form of the finger, over which the skins are curved as in the hand process. The bar is supported at each end in uprights (one of which is shown at C) the lower ends of which are supported on a shaft at $C^1$ the ends of which have excentric bearings in the frame A so that when the shaft C1 is partially revolved, the supporting bar B will be slightly raised and lowered, the object of which will be hereinafter explained. The said bar is caused to vibrate from the fur
182⅞ opening brushes at D and $D^1$ to the cutters at E and $E^1$ by connecting rods F attached at one end of the uprights C and at the other end to the crank pins on a shaft G which receives motion in any convenient manner.

Over the bar B an endless apron H is caused to travel to carry the fur skins shown at $H^1$. This apron is drawn first between two compression rolls K and $K^1$ on the front edges of the vibrating supports C, and underneath a compression plate at $K^2$, which is held at an angle against the upper front edge of the *the* supporting bar B as shown, and is supported by two fingers that reach out from a shaft $K^3$ which has a handle $K^4$ on its outer end by which the compression plate may be raised from the bar B, whenever a skin is to be introduced. The said plate is held against the bar by a spring at L, the pressure of which is regulated by a set screw $L^1$, the end of the spring acting against a toe at $L^2$ depending from the shaft that supports the compression plate, so that any desired degree of pressure may be brought upon the skin during its movement over the supporting bar B.

The apron and skin, after passing over the bar B are then drawn between two rolls M and $M^1$, the one at M being provided with a toothed wheel at $M^2$ which engages with a worm or screw on a shaft $M^3$, which is supported in bearings upon the plate N which is supported by a pivot or a pin at $N^1$ on the upright C and is held from vibrating by a spring pawl $N^3$ which engages in notches on the edge of the said plate, so that the worm may be thrown in and out of gear with the feed wheel $M^2$, as desired. The worm $M^3$ receives motion from a spring pawl at $N^4$ which is fastened upon the frame A at $N^5$ by screws in a slot as shown, so that it may be adjustable endwise, and its other end engages with a ratchet-wheel O on the end of the worm shaft, so that as the upright C moves
182⅞ over to the position shown in figure 2 the said ratchet-wheel will engages with the pawl $N^4$, and when the motion of the upright C is reversed the feeding operation will take place.

Two brushes or bushing rolls are represented in the drawing at D and $D^1$ driven by the same belt in the same direction, and these are covered with card, clothing, bristles, or teasels to draw the fur on the skin over the edge of the bar B and away from the compression plate, and when the fur is so drawn, the stiff hairs will stand up by themselves, as indicated in the drawing, and in this condition are carried over to the cutters E and $E^1$, where they are removed.

The cutters E consist of blades set in a roller or made of spiral form, as in the well known shearing machines for cloth, and the stationary cutter $E^1$ is a straight blade, fastened upon a plate W which is mounted upon bearings in the frame A, and on the opposite side to the said cutter are projections $W^1$ which extend back between set screws $W^2$ for regulating the position of the cutter to the knives or cutters E.

When two brushes are used as represented, it is desirable that the fur should escape from the brush intermediate between the cutters and the other brush, consequently the shaft $C^1$ is mounted on the excentric bearings as above stated, and upon one end is fastened an arm X to which a link $X^1$ is attached connecting to a lever $X^2$ which is pivoted to the frame A at $X^3$. One end of the said lever engages by a pin in a grooved cam Y fixed on the crank shaft G, and the said cam is so shaped that at each revolution of the shaft a vibratory motion is given to the lever $X^2$, and thence to the shaft $C^1$, which by its partial rotation causes the uprights C to gradually descend as the bar moves under the brushing roll $D^1$, and thus it describes a curve like a concave to the roll, and in this manner a longer or shorter brushing action can be produced.

182⅛ By such a construction only one revolving brush may be required, but two have been found preferable, and it is also preferable to make them small, so that the air may not be agitated over the fur in its passage under them.

With a machine constructed as above described the skin is fastened in any suitable manner by sewing, or pins, on the apron between the pressure rolls and between the pressure plate and the supporting bar B and then the machine is set in motion, and as the drawing action of the apron by the roll M proceeds, the skin is advanced over the bar B and towards the action of the brushing rolls and at each reciprocation of the bar to the cutters, the stiff or standing hairs are removed.

As above stated, one brushing roll may answer the purpose and in this case the one at D or that farthest from the cutters may be dispensed with.

Instead of using the cutters as shown, a flame as from a slotted pipe, and like the flame from a blow-pipe, may be used to singe the stiff hairs and burn them off at each reciprocation of the bar B, or a pair of nipping bars may be used instead of the said cutters so constructed as to open and close at each vibration, to pull the hairs

from the skin if desired. These can be easily placed on the same supporting shaft that supports the fixed or stationary cutter.

It will be readily understood that the bar B may be fixed or stationary, and the portion of the frame that carries the cutters and brushes may be caused to vibrate with the same movements as those above described, without departing from the nature of the said invention.

Having thus fully described the said invention as communicated to me by my foreign correspondents and the manner of performing the same, I wish it understood that I claim,—

First. An apparatus for removing the stiff hairs from fur,
1825/8 consisting of a holding device for supporting the skin, a brushing or combing device for opening the fur, and a removing agent as hereinbefore set forth.

Second. The combination of the vibrating bar B, with one or more separating brushes and clipping devices, as hereinbefore set forth.

Third. The combination of the supporting bar B and the uprights C mounted on a shaft having eccentric bearings and to which motion is imparted to cause the said bar to describe a curve to correspond to the brushing roll, as above set forth.

Fourth. The combination of the bar and the compression plate upon its side opposite to the brushing roll, as, and for the purpose hereinbefore set forth.

Fifth. The combination of the bar, the compression plate, the apron, and the feeding rolls to carry and hold the fur properly under the action of the brushing roll, as hereinbefore set forth.

Sixth. The combination of parts comprising the feeding rolls, the worm gear, the ratchet-wheel on the worm shaft, and the spring pawl operating as, and for the purpose hereinbefore set forth.

Seventh. The combination of the vibrating supports for the bar B with the grooved cam and the crank on the shaft G and the intermediate connections, as and for the purposes, hereinbefore set forth.

Eighth. In a machine for removing the stiff hairs from fur, the combination of the reciprocating bar, the compression plate, and one or more brushes with a clipping or removing device, as hereinbefore set forth.

Ninth. The combination of the regulating and holding
1826/8 spring for the compression plate with its adjusting screw and the toe depending from the shaft that supports the plate, as, and for the purpose hereinbefore set forth.

Tenth. The combination of the plate for supporting the worm pivotted at one end to the supporting plate C and having the spring pawl for holding the worm either in or out of action, as above set forth.

Eleventh. The combination of the fix-d or stationary cutter with a shaft on the frame A, and adjusting screws to regulate the relative

position of the said knife or cutter to the revolving cutters, as above set forth.

In witness whereof I the said William Robert Lake have hereunto set my hand and seal this twenty-eighth day of June in the year of our Lord one thousand eight hundred and eighty-one.

WM. ROBT. LAKE. [L. S.]

183 In the United States Circuit Court for the District of New Jersey.

THE CIMIOTTI UNHAIRING COMPANY
vs.
AMERICAN FUR REFINING COMPANY.
In Equity.
On Final Hearing.

*Opinion.*

(Filed February 12, 1903.)

The motion to strike out the expert testimony taken by plaintiffs in rebuttal is not entitled to prevail. The defendants introduced no direct or independent proofs, but in the course of the cross-examination of Carl Mischke, one of their own number who was called as a witness by the plaintiffs, they offered a copy of the Lake (English) patent of 1881, and drew out from the witness the declaration that the machines they used were constructed in accordance with it. This they now rely upon to defeat the plaintiffs' case, and it was to meet and overcome it that the testimony which is objected to was taken. The introduction of the Lake patent was out of order at the time and it is to be treated as if it had been brought in when it should have been, at the close of the plaintiffs' evidence in chief. This would have cut off much of the so called cross-examination of Mischke by his own counsel and compelled the defendants to resort to direct proofs of their own in the ordinary and appropriate way. The irregularity with which they are so chargeable is not to be made the basis for striking out what would otherwise be legitimate and relevant evidence. The Covert patent of 1884 was similarly brought in, while Gustave Cimiotti was under cross-examination, and notice was then given by plaintiffs' counsel that immediately on the close of defendants' case, he would take rebutting testimony on the subject of both these patents. The defendants were thus fully put on their guard as to what they would have to meet, and cannot claim to have been in any wise misled or prejudiced.

Neither is it of any concern to us what may be the terms of the agreement between the Cimiotti Unhairing Company and John W. Sutton, the owner of the patent in suit; whether, as contended by the defendants, it amounts to an unlawful combination in restraint

of trade, or as alleged by plaintiffs, is simply an exclusive
184 license upon certain conditions to manufacture, use and sell machines made in accordance with the patent. These proceedings are not brought to enforce the agreement but to restrain an alleged infringement, and all that the defendants can ask is that they should be carried on by parties who are entitled to do so, as to which there can be no question since the Cimiotti Company and Sutton are both joined. The suggestion that the latter may know nothing of the suit because the bill is only signed by the former, calls for scant consideration. It is brought in his name by responsible solicitors, and that is all we need to know.

The patent in suit, No. 383,258, which was issued to John W. Sutton May 22, 1888, for a machine for removing the stiff hairs from seal and other furs, has been the subject of extended litigation in the second circuit, where it has been uniformly sustained both in the lower courts and the court of appeals. 87 Fed. 997; 95 Fed. 474; 98 Fed. 297; 108 Fed. 82; *ibid.* 85; 113 Fed. 588; 115 Fed. 498; *ibid.* 507; *ibid.* 510; *ibid.* 524. These decisions are naturally, if not necessarily of persuasive force here; New York Filter Company *v.* Jackson, 112 Fed. 678; *ibid.* 1021; not that this court is controlled by them or absolved from an independent examination of the questions involved, but simply that they are entitled to proper deference as the decisions of courts of equal standing and authority; Mast *v.* Stover Mfg. Company, 177 U. S. 485. While, therefore, they have been of material assistance in the disposition of the present case, I have considered it my duty to examine it on my own account untrammeled by them, the conclusions which I have reached (however conforming to them) being substantially my own.

The case is by no means free from difficulty, and the margin by which the patent is to be sustained is a narrow one. Sutton was not the pioneer in the art of plucking or unhairing fur by machinery, the first to advance beyond the tedious hand process being the Cimiotti Brothers, who secured a patent for what is known as a blast machine in April, 1881. Neither was he the first to conceive of the use of a separating brush in place of a blast, taking that in its largest sense, a patent having been issued in England to William Robert Lake, representing Lambert & Kokesch of New York, almost simultaneously with that of the Cimiotti Brothers, in June, 1881; and H. W. Covert having obtained another in this country in 1884, in both of which a brush or brushing device is shown. Both of these are brought forward as anticipations, and the serious question is whether they do not bear that character.

185 In the Sutton patent the invention is declared to consist (in a machine for plucking skins) of a fixed stretcher bar, means for stretching and intermittently feeding the skin over it, a fixed card above and near the edge of the same, a rotary separating brush that is intermittently moved up in front of the stretcher bar, an oscillating guard below the stretcher bar, a rotary and a vertically cutting knife working in conjunction for cutting off the projecting

stiff hairs, and the mechanism for imparting the appropriate motion to these parts as described. The operation of the machine as given in the specifications is substantially as follows: After the skin to be unhaired is set in place with one end over the edge of the stretcher bar, the fixed card above it is drawn backwards a few times so as to card back the fur and hair and produce a parting in the fur, and is then set a little back from the edge; another card or brush at the back of the rotary knife passes in front of the stretcher bar and draws out the fur and hair; and the rotary separating brush is then moved up in front of the same and there revolved so as to separate the fur from the hair, brushing the fur downwards, and then itself proceeds in the same direction, carrying with it the fur, which is immediately held in place by the oscillating guard that follows, leaving the stiff upstanding hairs on the edge of the stretcher bar in position to be removed by the action of the cutting knives. While all the parts involved must be regarded as contributing to the general result, the one which seems to be particularly effective is the rotary separating brush, and the chief feature of its action is the downward sweeping movement by which the fur is carried away from the edge of the stretcher bar out of reach of the knives. No one claim of the patent embodies all of the elements mentioned, nor in any is the downward action of the rotary separating brush made a feature, although described in the specifications and illustrated in the drawings. The third claim seems to me the most comprehensive, but the eighth is the one relied upon and is as follows:

"8. The combination of a fixed stretcher bar, means for intermittently feeding the skin over the same, a stationary card above the stretcher bar, a rotary separating brush below the same, and mechanism substantially as described whereby the rotary brush is moved upwards and forward into a position in front of the stretcher bar, substantially as set forth." Nothing is said of the cutting knives in this claim, nor, as just suggested, of the special downward action of the separating brush; but assuming that the functions of the several parts so assembled are the same as are assigned to them in the specifications, the question is in what relation they stand to the prior art.

186 On the fact of things and at first blush it must be confessed that we seem to have little if anything different from what is disclosed in the Lake (British) patent of 1881, already referred to. That invention, as stated in the specification, is said to consist in the general combination of (1) a holding device for supporting the skin, (2) brushing or combing agent for drawing the fur away from the hairs, and (3) a clipping device to remove them when so separated. Enlarging upon this, the supporting device is described as a bar with slightly rounded edge over which the skin is stretched, set in a reciprocating frame, pivoted on eccentric bearings, so arranged that when the supporting shaft is revolved the (stretcher) bar will be slightly raised and lowered. This bar is caused to vibrate from the "fur opening brushes" employed to separate the fur and hair, to the

cutting knives, and back again to the brushes by means of an actuating shaft and crank, and the operation of the machine is given substantially as follows: The skin to be unhaired is carried over the stretcher bar on an endless apron, being first drawn underneath a compression plate and in that position is presented to the brushing rolls for their action, by an intermittent feed. These brushing rolls, as represented, are two in number, set one slightly below and in advance of the other, the first, however, being able, as it is said, to be dispensed with. They are made to revolve in the direction of the hands of a clock, and are described as being covered "with card-clothing, bristles, or teasels," the function assigned to them being to draw the fur over the edge of the stretcher bar and away from the compression plate, allowing the stiff hairs to stand up by themselves. This action of the brushes is effected as the stretcher bar is carried in the direction of the cutting knives, which are stationary, the stretcher bar being made to rise from the one brush toward the other by the action of a cam on the main shaft, and to escape from the intermediate or second brush on its return, in a descending concave curve under it, by a protuberance on the opposite side of the cam. There is some considerable ambiguity with regard to these motions, but I have taken those which are most favorable to the defendants, and at the same time justified as most natural and probable. Here then in a general way we have all the elements of the patent in suit; (1) a stretcher bar (movable instead of fixed, but none the less an equivalent, as the Lake itself recognizes;) (2) an intermittent feed; (3) a stationary card in the shape of a compression plate above the stretcher bar; (4) rotary separating brushes to open the fur and draw it over the edge of the stretcher bar; and (5) appropri-
187 ate mechanism to move the stretcher bar up and into contact with the brushes, a plain equivalent for the reciprocal motion of the brush into position in front of the stretcher bar in the Sutton. Not only are these elements themselves apparently duplicated in the two patents, but accepting in the Lake the upward curve of the stretcher bar, moving forward from one brush to the other, as not only intended but shown, it is a question whether in the consequent action of the brushes on the fur we have not the very downward sweep on which so much stress is laid as the one effective feature of the patent in suit.

What then is there to distinguish the one patent from the other? It is to be found, as it seems to me, notwithstanding what has been said, in the character of the brushes employed and the different effect of the two devices on the fur and hair. The brushing rolls in the Lake are to be covered, as is expressly specified, "with card-clothing, bristles or teasels," and they are to operate by drawing the fur over the edge of the stretcher bar. This is descriptive of a carding and not a brushing action as in the patent in suit. It is true that the specifications in another part speak of a brushing or combing agent as an element of the invention, which, standing by itself, might imply something different; but even in that connection the

purpose is said to be to draw the fur away from the hair, which is at least consistent with carding or teaseling, what is controling being that card-clothing or teasels would be inappropriate for anything else; and although bristles are mentioned as an alternative, such bristles are to be understood from the connection as would produce the same effect. To strengthen this conclusion, the rolls are portrayed in the drawings, not like brushes but like cards. The brushing rolls of the Lake patent, therefore, must be accepted as of this special and peculiar character and intended to act by catching or engaging the mass of fur at the edge of the compression plate as card-clothing or teasels would engage it, drawing it down and over the edge of the stretcher bar, the resiliency of the water hairs being relied upon to make them spring up and be removed by the cutting knives. If this be so, we have something quite aside from that which is found in the Sutton machine. The action there consists, as we have seen, in parting the fur over the edge of the stretcher bar and brushing or sweeping it down on the off side as the separating brush moves in that direction, the relatively soft bristles of which it is composed conducing to that result. The distinction which is thus made between the two patents, if this be the true construction of them, is a real and substantial one, as experience
188 has proved. While the Sutton machines have been extensively employed from the first and been eminently successful, there never was an effective Lake machine, and the difference in the character and action of the brushes is probably the reason for it. The Lake was inherently defective and was abandoned by the inventors, Lambert and Kokesch, after spending some two thousand dollars along with their attorney Shaw in trying to produce something that would be operative, so that not only was the application which had been made in this country given up, but the British patent which had been granted, was allowed to lapse a few years afterwards for want of the continuing fee. As a foreign patent it stands simply for what is disclosed and not for what by some possibility could be made out of it; Seymour *v.* Osborn, 11 Wall., 516; Hanifen *v.* Godschalk, 84 Fed. 649; Hanifen *v.* Armitage, 117 Fed., 845; and as a commercial failure there is no particular occasion to treat it any more favorably than we have to. Adopting the interpretation suggested above, which I am convinced is the true one, it is not in any respect an anticipation of the patent in controversy.

What has been said of the Lake is true also to a certain extent of the patent issued in 1884 to H. W. Covert. In that as in the Lake, we have the same general combination of elements, the distinction between it and the Sutton consisting in the character and operation of the special devices employed to act upon and part the fur and hair at the edge of the stretcher bar. In this machine one of the cutting knives serves as a guide device, pressing down and holding back the fur, except so much as is released each time by the forward motion of the pelt. The layer of fur so released is then acted upon by a segmental rotary brush which passes over it at the edge of and

at right angles to the stretcher bar and draws it forward. As the brush leaves the fur, the hairs are supposed to spring back on account of their elasticity, to be caught and cut by the knives; while the fur is prevented from doing this by a revolving metal plate or wiper (kept damp by passing through a wet brush) which catches and plasters it down on the off side. It will be thus seen that the segmental brush merely opens or parts the fur, and that it is the metal wiper which is relied on to carry it down and away from the knives, the effective downward action of the Sutton brush being committed to that device. It must be confessed that this combination comes very close to the patent in suit, but at the same time I am not persuaded that it is an equivalent. There is this important difference; the Sutton brush engages the fur at the edge of
189 the stretcher bar, and at once, without parting from it, sweeps it down and out of harm's way; while the Covert brush after simply opening and drawing forward a layer of the fur, passes on and leaves it to be caught and carried down by the wiper, with the serious chance that in the interval between, the fur, like the hair, may also spring back into reach of the knives. The different functions of the agencies so employed and the materially different method in their operation sufficiently distinguish the one patent from the other and leaves a place by itself for the patent in suit.

There is nothing in the record before me to show whether anything was ever done under the Covert patent, or how far it was found to be commercially successful. Mention was made at the argument of a so called Covert machine in which a cylindrical roller covered with felt or carpet was substituted for the segmental rotary brush, and it seems to have figured in some of the cases in the second circuit; 98 Fed., 297; 115 Fed., 489. But it is not brought forward here and no further notice need be taken of it. According to the views expressed in the cases where it was considered, it was a mere experiment out of which nothing came.

There being nothing, therefore, in the prior art to affect the validity of the Sutton patent, the question of infringement is all that remains, and this is not involved in any serious difficulty. The machines in use by the defendants have all the elements of the claim in suit and apparently infringe upon it. The defense set up is that they are constructed according to the Lake patent, and therefore do not, but unfortunately this position cannot be sustained. It is no doubt true that the general form of mechanism there specified has been followed, but it has been admittedly and necessarily modified in several particulars. Some of these changes merely go to relieve the obscurities found in the patent, but others are of a much more radical character. The Lake as a piece of machinery, of course, has operative parts, but whoever employs them is confined to what is there expressly shown; they must not only have its elements, but they must operate in the way there specified; you cannot work them over so as to make a new machine, and that is what has practically been done in the present instance. This patent has been dormant

for over twenty years, and there has been a corresponding advance in the art to which it belongs. It is easy now that our eyes have been opened to see what to do to make it successful and this is of course permitted provided it does not infringe on what others have invented and patented meanwhile. A comparison shows that all the changes which we find introduced in the defendants'
190 machine are in the direction of that of the Sutton. The single brush employed is moved considerably below the position given it in the Lake drawings and dsecription, and by increasing the irregularities of the cam and timing them somewhat differently, the downward sweep of the brush is materially increased and changed. But more than this, in place of the brushing rolls covered with card-clothing or teasels, (or what would be the equivalent bristles) as required by the patent, we have ordinary bristle-brushes substituted, entirely changing their action and function and amounting to a clear departure.

Whatever view be taken of anything else, this is sufficient to establish that the machines which the defendants are using are not Lake machines, whatever resemblance they may bear in their general outline, but are modifications which appropriate the elements of the Sutton patent and infringe upon it.

Let a decree be drawn sustaining the bill and referring the case to a master.

R. W. ARCHBALD,
*District Judge.*

At a stated term of the circuit court of the United States for the district of New Jersey, held at the court rooms thereof, in the city of Trenton, N. J., on the 21st day of February, 1903.

Present: Hon. R. W. Archbald, U. S. judge.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON.
*vs.*
AMERICAN FUR REFINING COMPANY, CHARLES A. Watson, George W. Frayne, and Max Mischke. } In Equity.

*Interlocutory Decree.*

(Filed February 21, 1903.)

This cause having duly come on to be heard for final hearing on the 12th day of May, 1902, upon the pleadings and proofs taken and filed herein; now, after hearing Louis C. Raegener, Esq., of counsel for complainants, and Henry Schreiter, Esq., of counsel for the defendants, and upon due deliberation, it is

191 Ordered, adjudged and decreed that letters patent of the United States No. 383,258, granted May 22, 1888, to John W. Sutton, for a certain new and useful invention and improvement in

machines for plucking furs, and referred to in the bill of complaint herein, are good and valid in law as respects the eighth claim thereof.

That the complainant John W. Sutton was the first, original and sole inventor and discoverer of the said new and useful invention or improvement in machines for plucking furs described and claimed in said letters patent, and is the exclusive owner thereof.

That the complainant Cimiotti Unhairing Company, ever since on or about January 1, 1897, has been, and now is, the sole and exclusive licensee under the said letters patent, No. 383,258, and the inventions and improvements described therein.

That the said defendants, American Fur Refining Company, and Max Mischke, have infringed upon the said letters patent, and upon the eighth claim thereof, and upon the exclusive rights of the complainants to and under the same, by making, constructing and using machines containing and embodying the invention and improvements shown, described and claimed in the eighth claim of said letters patent as charged in the bill of complaint herein.

And it is further ordered, adjudged and decreed that the complainants, Cimiotti Unhairing Company and John W. Sutton, do recover of the defendants, American Fur Refining Company, and Max Mischke, the profits, gains and advantages which the said defendants have received or made, or which have arisen or accrued to them from or by reason of their said infringement of the said letters patent by the manufacture, use or sale of said invention, or of machines made according to and employing and containing the said invention, shown, described and claimed in the eighth claim of said letters patent No. 383,258, together with the damages which have accrued to the complainants by reason of the said infringement of the defendants.

And it is further ordered, adjudged and decreed that it be referred to —— ——, as master, at his office, —— or such other place or places as said master may from time to time designate, to ascertain and take and state and report to this court an account of the number of machines for plucking furs, made, constructed, used or sold by the said defendants, and made according to and employing and containing the said invention of said letters patent; and also
192 all the gains, profits and advantages which the said defendants have received or made, or which have arisen or accrued to them from or by reason of their said infringement of the said letters patent by the manufacture, use or sale of the said invention or of machines made according to and employing and containing the said invention shown, described and claimed in the eighth claim of said letters patent No. 383,258, together with the damages which have accrued to the complainants by reason of the said infringement by the defendants.

And it is further ordered, adjudged and decreed that the complainants, on such accounting, shall have the right to cause an examination of the said defendants, and of the officers and directors

of the said defendant American Fur Refining Company, *ore tenus* or otherwise, and also the production of the books, vouchers and documents of said defendants; and that the said defendants and the said officers and directors attend for such purpose before said master from time to time as the said master shall direct.

And it is further ordered, adjudged and decreed that a perpetual injunction shall issue forthwith in this cause against the said defendants, American Fur Refining Company, and Max Mischke, them and each of them, their and each of their officers, agents, attorneys, workmen and servants, and each and every of them, forever enjoining and restraining them, as prayed in the bill of complaint herein, from directly or indirectly making, constructing, using, vending, delivering, working or putting into practice, operation or use, or in any way counterfeiting or imitating the invention of the eighth claim of U. S. letters patent No. 383,258, granted May 22, 1888, to John W. Sutton, or any machine made in accordance therewith or like or similar to the machines heretofore constructed, used or operated by the said defendants.

And it is further ordered, adjudged and decreed that the complainants, Cimiotti Unhairing Company and John W. Sutton, do have and recover from the defendants, American Fur Refining Company and Max Mischke, their costs, charges and disbursements in this suit to be taxed by the clerk of this court.

R. W. ARCHBALD,
*District Judge.*

There is no objection to the form of the above decree.
Dated February 20, 1903.

SCHREITER & MATHEWS,
*Sol'rs for Defendants.*

193 Circuit Court of United States, District of New Jersey.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON, Complainants,
*vs.*
AMERICAN FUR REFINING COMPANY, CHARLES A. Watson, George W. Frayne, and Max Mischke, Defendants.
} In Equity.

*Assignment of Errors.*

(Filed February 21, 1903.)

The defendants in this case make in connection with their petition for appeal, the following assignment of errors which they aver occurred in the cause, and which they intend to urge upon appeal.

I. The court erred in holding that defendants' machines are not

such machines as set forth in the British patent to Lake, of June 28, 1881, No. 2836.

II. The court erred in holding that defendants' machines contain the improvements set forth in the patent in suit, or a substantial or material part thereof.

III. The court erred in construing the claim eight of the patent in suit.

IV. The court erred in holding that defendants' machines infringe the claim eight of the patent in suit.

V. The court erred in holding that in view of what was known and used in prior art, the devising of such a machine for plucking furs, as specified in the claim eight of the patent in suit, constitutes an invention; that therefore the claim eight of the patent in suit is valid in law, and in not holding the reverse thereof.

VI. The court erred in overruling defendants' contention that complainants herein failed to sustain the allegations of their bill, on which their capacity to sue on this patent is based.

VII. The court erred in sustaining and not dismissing the bill of complaint herein.

SCHREITER & MATHEWS,
*Solicitors for Defendants.*

HENRY SCHREITER,
*Of Counsel.*

194 *Bond.*

(Filed February 21, 1903.)

*Know all men by these presents*, that we the American Fur Refining Company, of 26 Morris street, Jersey City, New Jersey, as principal, and the American Bonding Company, of Baltimore, as surety, are held and firmly bound unto the Cimiotti Unhairing Company and John W. Sutton, in the sum of two hundred and fifty dollars ($250.00) to be paid to the said Cimiotti Unhairing Company and John W. Sutton, their heirs, executors, administrators, successors or assigns; for the payment of which well and truly to be paid, we bind ourselves, and each of us, our and each of our successors, jointly and severally, firmly by these presents.

Sealed with our seals and dated the 21st day of February, 1903.

Whereas the said American Fur Refining Company has appealed to the circuit court of appeals of the United States for the third circuit from a decree of the circuit court of the United States for the district of New Jersey, entered on the 21st day of February, in a suit in equity pending therein, in which the said Cimiotti Unhairing Company and John W. Sutton are complainants and the said American Fur Refining Company and others are defendants.

*Now, therefore*, the condition of this obligation is such, that if the above-named appellants prosecute said appeal with effect and pay

all costs which may be awarded against it as such appellant if the appeal is not sustained, then this obligation shall be void; otherwise the same shall remain in full force and effect.

AMERICAN FUR REFINING COMPANY,
[SEAL.] By GEO. W. FRAYNE, *Treas.*
AMERICAN BONDING COMPANY OF BALTIMORE,
[SEAL.] By HOWARD ABRAHAMS, *Vice-Pres.*

Attest: HENRY J. SAGE, *Ass't Sec'y.*

Approved Feb. 21, 1903.
R. W. ARCHBALD,
*Dist. Judge.*

195 STATE OF NEW YORK, } ss:
*County of New York,* }

On the 21st day of February, 1903, before me personally came George W. Frayne, to me known, and who being by me duly sworn, deposes and says: That he resides in the city of New York; that he is the treasurer of the American Fur Refining Company, the corporation *who* described — and who executed the above instrument; that he knew the seal of said corporation; that the seal affixed to the said instrument was such corporate seal; that it was affixed by order of the board of directors of said corporation, and that he signed his name thereto by like order.

ROBERT VALENTINE MATHEWS,
[L. S.] *Notary Public, Kings County.*

Certificate filed in New York Co.

STATE OF NEW YORK, } ss:
*City and County of New York,* }

On the 20 day of February, 1903, before me personally came Howard Abrahams, to me known, who, being by me duly sworn, did depose and say, that he resides in the city of New York; that he is the vice-president of American Bonding Company of Baltimore, the corporation described in and which executed the within instrument; that he knew the seal of said corporation; that the seal affixed to said instrument was such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that he signed his name thereto by like order; and that the liabilities of said company do not exceed its assets as ascertained in the manner provided in section 3, chapter 720, of the Session Laws of the State of New York for the Year 1893. And the said Howard

Abrahams further said that he was acquainted with Henry J. Sage, and he knew him to be the assistant secretary of said company; that the signature of said Henry J. Sage subscribed to the within instrument is the genuine handwriting of the said Henry J. Sage and was subscribed thereto by like order of the board of directors, in the presence of him, the said Howard Abrahams.

D. C. MACKEY,
[L. S.] *Notary Public, Kings County, No.* 71.

Certificate filed in New York Co.

196 *Extracts from Charter of American Bonding Company of Baltimore.*

"The said company shall be and is hereby authorized and empowered to insure the fidelity of persons holding places of trust or responsibility to or under any State, county, city, corporation, company, person or persons whatsoever; to become security for the faithful performance of any trust office, duty, contract or agreement, and to supersede any judgment or to go upon any appeal or other bond."

* * * * * * * *

"That the directors shall * * * elect from their number * * * an executive committee."

"The executive committee so chosen * * * shall have power to elect non-resident local boards, non-resident local vice-presidents and non-resident local assistant secretaries * * * with power to sign and deliver bonds of suretyship and other obligations for and on behalf of and in the name of said company to the same effect and with the same binding obligation as if the said instrument had been executed by the president or vice-president and secretary or assistant secretary. * * *"

"That the name of the said corporate body is * * * changed from 'The American Bonding and Trust Company of Baltimore City' to the 'American Bonding Company of Baltimore.'"

* * * * * * *

Extract from minutes of a meeting of the executive committee, held at the office of the company, at Baltimore, Maryland, on the 10th day of November, 1902. * * *

Mr. Ernest Hoen, Jr., presented the following resolution, seconded by Mr. James S. Woodside.

"Preamble—Whereas, in virtue of a certain resolution dated the thirty-first day of July, 1902, Howard Abrahams and William P. Flanders were declared, appointed or elected vice-presidents, and Henry J. Sage, Hulbert T. E. Beardsley, Edward B. Southworth, Jr., and D. Clinton Mackey were declared, appointed or elected assist-

ant secretaries, to serve in the city of New York, State of New York; now, therefore,

"*Resolved*, That said appointments or election of said persons, for reason, is hereby declared null and void, and all powers granted under said resolution, are hereby revoked; to more definitely determine the purpose and intention of said annullment and revocation, be it further

197 "*Resolved*, That Howard Abrahams of New York city, New York, and Henry J. Sage, of the same place, be and are hereby appointed resident vice-president and assistant secretary, respectively, of this company, at New York city, New York, with power to execute bonds on behalf of the company for its business and in accordance with its charter. That in the absence of the said Howard Abrahams, Hulbert T. E. Beardsley, of the same place, be and he is hereby authorized to act as resident vice-president, and with the same power as the said Howard Abrahams; and that in the absence of the said Henry J. Sage, either, Edward B. Southworth, Jr., or D. Clinton Mackey, of the same place, be and are hereby authorized to sign all bonds and undertakings issued by the company as assistant secretary, in attestation of the seal of the company affixed thereto."

"And on ballot, a majority of the whole committee having voted in the affirmative, the said resolution was adopted, and the aforesaid nominees were declared to be duly elected as such officers of the company with powers aforesaid."

I, Henry J. Sage, assistant secretary of American Bonding Company of Baltimore, hereby certify that the foregoing are true and correct copies taken from the records of American Bonding Company of Baltimore.

*In witness whereof*, I have hereunto subscribed my name and affixed the corporate seal of American Bonding Company of Baltimore, at New York city, N. Y., this 20 day of Feb. 1903.

HENRY J. SAGE,
*Assistant Secretary.*

[L. S.]

*Statement of American Bonding Company of Baltimore at the Close of Business December 31st, 1902.*

| | |
|---|---|
| Capital paid in | $1,000,000.00 |
| Stockholders' liability | 1,000,000.00 |
| Reserve for reinsurance | 294,888.76 |
| Surplus and undivided profits | 332,450.58 |
| Total | $2,627,339.34 |

198 *Assets.*

| | |
|---|---|
| Stocks and bonds (market value) | $1,446,626.00 |
| Outstanding premiums, less commissions | 85,528.35 |
| Accounts receivable, secured | 155,363.18 |
| Interest accrued | 15,851.70 |
| Real estate | 69,569.26 |
| Furniture and fixtures | 1.00 |
| Loans, (mortgage, time and call) | 235,736.80 |
| Cash in offices and depositories | 146,953.98 |
| | $2,155,630.27 |

*Liabilities.*

| | | |
|---|---|---|
| Capital stock | | $1,000,000.00 |
| Collateral and special deposits and bills payable | | 456,322.03 |
| Due for re-insurance | | 1,083.20 |
| Special reserve for reported losses, proofs not filed | | 70,885.70 |
| Legal reserve | $294,888.76 | |
| Surplus and undivided profits | 332,450.58 | |
| | | 627,339.34 |
| | | $2,155,630.27 |

STATE OF NEW YORK, }
*City and County of New York,* } ss:

I, Howard Abrahams, vice-president of the American Bonding Company of Baltimore, do hereby certify that the foregoing is a true statement of the assets and liabilities of the said company at the close of business, December 31st, 1902.

In testimony whereof, I hereunto set my hand and affix the seal of the company this 20 day of February, 1903.

[L. S.] HOWARD ABRAHAMS.

Subscribed and sworn to before me this 20 day of February, 1903.

D. C. MACKEY,
[L. S.] *Notary Public, Kings County,* 71.

Certificate filed in New York Co.

199 Circuit Court of the United States, District of New Jersey.

CIMIOTTI UNHAIRING COMPANY and JOHN W. SUTTON, Complainants,
vs.
AMERICAN FUR REFINING COMPANY, CHARLES A. Watson, George W. Frayne, and Max Mischke, Defendants.
} In Equity.

*Petition on Appeal.*

(Filed February 21, 1903.)

The above named defendants, The American Fur Refining Co. and Max Mischke, conceiving themselves to be aggrieved by the decree entered herein on the 21st day of February, 1903, do hereby appeal from the said decree to the United States court of appeals for the third circuit, and pray that this appeal may be allowed and that a transcript of the records and proceedings and of all papers and exhibits upon which the said decree was made, duly authenticated, may be sent to the United States circuit court of appeals for the third circuit, in the city of Philadelphia, and that the proceedings before the master be stayed until the final determination of the appeal.

SCHREITER & MATHEWS,
*Solicitors for Defendants.*

*Order Allowing Appeal.*

(Filed February 21, 1903.)

Now, to wit, on this 21st day of February, 1903, it is ordered that the appeal be allowed as prayed for and the proceedings before the master stayed until the final determination of the appeal.

R. W. ARCHBALD,
*United States Judge.*

200 *Citation.*

(Filed February 23, 1903.)

UNITED STATES OF AMERICA, ss:

The President of the United States to Cimiotti Unhairing Company and John W. Sutton, Greeting:

You are hereby cited and admonished to be and appear at a United States circuit court of appeals for the third circuit, to be holden at the city of Philadelphia within thirty days, pursuant to

an appeal, filed in the clerk's office of the circuit court of the United States for the district of New Jersey, wherein The American Fur Refining Company and Max Mischke are appellants and you are appellees, to show cause, if any there be, why the decree rendered against the said appellant- as in the said appeal mentioned, should not be corrected, and why speedy justice should not be done to the parties in that behalf.

Witness, the Honorable Robert W. Archbald, judge of the circuit court of the United States this 21st day of February, in the year of our Lord one thousand nine hundred and three.

R. W. ARCHBALD, *Judge.*

Service of a copy of the above citation and a copy of the bond is hereby admitted.

Dated: Feb. 21, 1903.

LOUIS C. RAEGENER,
*Solicitor for Complainants.*

201 *Clerk's Certificate.*

UNITED STATES OF AMERICA, *District of New Jersey,* } ss:

I, S. D. Oliphant, clerk of the circuit court of the United States, for the district of New Jersey, do hereby certify that the foregoing is a full, true and complete transcript of the record in the case of Cimiotti Unhairing Company *et al.* against American Fur Refining Company *et als.* as the same remains on file and of record in my office.

[SEAL.] In testimony whereof I have hereunto subscribed my name and affixed the seal of said court at Trenton, in said district, this twenty-sixth day of February, nineteen hundred and three.

S. D. OLIPHANT, *Clerk.*

202 And afterwards to wit, on the first day of April, A. D. 1903, this cause being called for argument on the transcript of record from the circuit court of the United States for the district of New Jersey before Hon. M. W. Acheson and Hon. George M. Dallas circuit judges, and Hon. Joseph Buffington, district judge, and being argued by counsel for the respective parties and the court not being fully advised in the premises takes further time for the consideration thereof.

And afterwards to wit, on the third day of July, A. D. 1903, comes the parties aforesaid by their counsel aforesaid, and the court now being fully advised in the premises renders the following opinion, to wit:

In the United States Circuit Court of Appeals for the Third Circuit.

AMERICAN FUR REFINING COMPANY ET AL., Appellants,
*vs.*
CIMIOTTI UNHAIRING MACHINE CO. and JOHN W. SUTTON, Appellees.

Appeal from the United States circuit court for the district of New Jersey.

Before Acheson and Dallas, circuit judges, and Buffington, district judge.

BUFFINGTON, *J.*:

This is an appeal from a decree entered in the United States circuit court for the district of New Jersey against The American Fur Refining Company, appellant, alleging infringement of the eighth claim of patent No. 383,258, granted May 22, 1888, to John W. Sutton, for a machine for plucking furs. The validity of the patent was sustained in Cimiotti Unhairing Company, *et al.*, *vs.* Bowsky, 95 Federal Reporter, 474, a case heard in the second circuit, and is not here questioned, the sole issue being alleged infringement.

203 The invention relates to "an improved machine for plucking seal skins and other furs so as to remove the stiff water-hairs therefrom without injuring the soft hair or wool of the same." Scattered among the fur on the pelt of such animals are found stiff, resilient hairs, termed water-hairs, which it is necessary to pluck or cut off. This before 1881 was done by hand. Over the index finger, which it will be noted corresponds to the stretcher-bar of the later art, the operator stretched a section of the pelt. By the mouth the fur was then blown down and retained in place by the thumb and finger, a depressing and repressing effect which corresponds to the separating and holding devices shown later. The toughness and resiliency of the water-hairs caused them to stand upright. They were then cut or plucked by shears or tweezers. Hand-plucking was a laborious and expensive process, a girl taking a week to unhair a single seal pelt. The first advance in machine unhairing of such skins was made by Gustav and Ferdinand Cimiotti, who subsequently incorporated their interests in the appellee company. Briefly stated, their device, as shown in their patent of 1881, consisted of a knife-edged stretcher bar, a bellows which parted the fur and water hair, depressing the former and suffering the latter to stand out at the stretcher-bar edge, a mechanism which simultaneously moved up guard-combs to hold down the fur, and shears, brought to and operating at the stretcher-bar edge, to cut the standing water hairs. By this machine an operator was enabled to unhair eight seal pelts in a day. It was highly successful and as a seal unhairing device has never been supplanted. In 1883 another air-blast plucking machine was invented by one Rasmus. Its value was

such that it was purchased by the Cimiottis, who in 1884 licensed the firm of Bates & Co. of Boston thereunder and have collected royalty to the extent of several thousand dollars per year. These two machines practically monopolized, since that time, the unhairing of seal skins in the United States. In 1888, Sutton sought by the patent in
suit to improve on air-blast machines. His device as stated in
204 his patent, was "more especially designed with a view to overcome some of the defects and insufficiencies of the plucking machines heretofore in use." These defects related to a particular part of the operation, as he desired to "produce the plucking of the skins at the lower part of the neck and shoulders where the hairs pointed outwardly and backwardly and are the most difficult to pluck as they lie down close to the skin when the same is drawn over the stretcher-bar," and "to dispense with a blast fan or other air forcing devices and produce the removing of the water hairs entirely by mechanical means, which are operated by power so that a quick and uniform plucking of the skin takes place." It will be particularly noted that the expressed special purpose of his invention was to clip the outwardly pointing hairs at the lower side of the neck. Sutton's invention is best stated in his own words: "The invention consists of a machine for plucking seal and other skins, which comprises a fixed stretcher-bar, means for stretching and intermittently feeding the skin over the said stretcher bar, a fixed card above the stretcher bar near the edge of the same, a rotary separating brush that is intermittently moved up in front of the stretcher bar, a rotary cutting knife and a vertically reciprocating cutting knife working in conjunction with the rotary knife for cutting off the stiff projecting hairs, said rotary cutting knife being provided with a card suppoerted back of the knife all of which parts are operated from a common driving shaft, so as to produce for each rotation of the same the cutting off or plucking of the hairs projecting from that part of the skin in front of the stretcher bar. * * * The invention consists further, of the mechanisms by which the motion is imparted from the driving shaft to the different parts comprising the machine, as will appear more fully hereafter, and finally be pointed out in the claims." The eighth claim of the patent, which is here in issue, is as follows: "The combination of a fixed stretcher bar, means for intermittently feeding the skin over the same, a stationary card
above the stretcher bar, a rotary separating brush below
205 the same, and mechanism substantially as described whereby the rotary brush is moved upward and forward into a position in front of the stretcher bar, substantially as set forth." It will be noted that other claims of the patent were for a combination or working machine embodying all the effective elements and that the eighth claim embodies only certain particular features. Analysis of the claim shows that every element is specifically described in the patent specification and the functional purpose thereof distinctly stated. We have first a fixed stretcher bar.

This fixed stretcher bar is the center toward which all the movable operative elements of the machine converge. The specification says: "On the frame A is supported a fixed transverse stretcher bar, B, which is tapered to a narrow edge, over which the skin to be plucked is stretched. The skin is applied by tapes to the roller B′ B′, which are intermittently actuated by gear-wheels operated by a pawl-and-rachet wheel mechanism from the driving shaft S, as customary in plucking machines of this class. By the gear-wheels and pawl-and-rachet mechanism the skin is fed intermittently for a small portion of its length over the front edge of the stretcher bar, it being unwound from the upper and wound up on the lower feed roller." It thus appears not only that the stretcher bar was fixed and therefore incapable of effecting the forward movement of the pelt, but that such forward pelt movement was effected direct from the driving shaft by means independent of the stretcher bar.

The next element of the claim is a stationary card above the stretcher bar. The function and use of this stationary card are shown in the specification: "Immedately above the stretcher bar B is arranged a stationary card, E, which is attached to the ends of the stretcher bar B by means of thumb screws. (Not shown in the drawings.) The points of the teeth of the card E are close to but do not touch the surface of the skin, so that the hair and skin are both straightened as the skin is fed forward. The teeth of the card
E hold down the fine fur, but permit the stiff hairs to stand
206 up between the teeth, owing to the slow forward movement
of the skin, which gives the hairs sufficient time to so adjust themselves." Not only is the card's function thus stated but to it is attributed, in combination, the effectiveness of the device. Says the patentee: "The operation of the machine is quick and reliable, the hair being cut off close to the skin and without injury to the fur, which is held back so as not to be presented to the knives *by the action of the stationary card above* and the joint action of the separating brush and oscillating guard below the stretcher bar."

It therefore appears that the teeth of the card effected a preparatory functional operation, and the card's importance may be estimated by the fact that it is an element in nine of the eleven claims. The other elements of this claim are a rotary separating brush below the stretcher bar (the brush being necessarily movable) and "a mechanism, substantially as described, whereby the brush is moved upward and forward in front of the stretcher bar."

The proofs show that Sutton's machine had no effect on the seal unhairing art and as practically not used therein. An exclusive license thereto was acquired by the Cimiottis, but the machine's use was confined to some experimental work. It was never used commercially for the unhairing of seals. Gustav Cimiotti testifies: "I never unhaired any seal skins commercially on the Sutton machine. Most of the skins that were unhaired on the Sutton machiner were done day by day in an experimental way." Indeed, he goes to the length of saying it was not adapted to unhairing seal skins.

His testimony in a former case embodied in this record is explicit: "Q. The machine built in accordance with the Sutton patent here in suit is not at all adapted to unhair seal skins, is it? A. No, sir." He further testifies that the Cimiottis were unhairing from eighty to ninety thousand seal skins a year, and that they were all unhaired on the Cimiotti air blast machines "except a few which were unhaired on the Sutton machine."

207 The rapid operation of a machine of Sutton's type as compared with one of the Cimiotti air-blast design and the gain in output and economy of operation in the former, if it could be successfully used to unhair seal pelts, is apparent. That it could not and has not been practically and commercially used for the unhairing of seals, for which it was invented, because it could not do it safely, is strongly suggested, if not, indeed, proven by the catious statement of Mr. Cimiotti. A seal skin is worth approximately $50.00. A slip, therefore, in a rapidly working power machine means ruin to such a pelt. Mr. Cimiotti testifies: "The only difficulty in unhairing seals on a power machine is that it is more dangerous—that if some wool should spring out occasionally you cannot stop it quick enough to prevent damage to the wool and therefore a hand machine is preferable as the man has it more under control all the time." This criticism of a power machine is in line with the testimony of Shaw, who was interested in a machine for unhairing seal constructed under the Lake, British patent of 1881. In answer to the question: "What was the trouble with the machine or with the business that induced you to abandon the invention," Mr. Shaw testified, "the machine was not accurate enough; it would cut the stiff hairs and the next minute it would cut a hole in the skin. I saw one skin that I paid $60.00 for ruined in one second. "Whatever the reason the fact is unquestioned that the machine of Sutton had no effect on the particular art to which it was addressed, and after its purchase by the Cimiotti firm it remained in disuse for a period of two years, although they were then unhairing from eighty to ninety thousand seal skins a year, and if it was adapted to that work they could have used it presumably with much profit. Had commercial conditions so continued there would have been no pretense for any expansive construction of the claims of this patent. In this condition of disuse the commercial development of what is called the coney or rabbit skin in-

208 dustry made possible the adaptation of the Sutton machine, or a modification thereof, to that character of work. The value of the Sutton machine therein was wholly an afterthought and incidental. When the possibility of unhairing and dyeing a rabbit skin so as to resemble a seal and selling it under the name of "Electric Seal" was demonstrated, the disused Sutton machine was brought out by the complainants and adapted to this work. The proofs show that the complainants began unhairing these rabbit skins in 1890. This was first done on the air-blast machines. Their operation was not rapid enough and attention naturally turned to the unused Sutton machine. Gustav Cimiotti says:

"When the coney industry came into the market we naturally thought that the Sutton machine, being an automatic machine, would be better adapted, and we merely made experiments with coneys and found it satisfactory, upon which an order was given for a number of them for coneys." A slip in the operation of a Sutton machine, which was prohibitive in the case of seals, was a matter of comparative indifference in unhairing coney skins, which were worth approximately six dollars a dozen. Cimiotti admits the machines were not built according to the drawings: "Well, they are not exactly according to the drawings. There were some changes made in the course of experimenting on them and we made some changes in the mechanical details, but the original principles of the patent were adhered to." Sutton, one of the complainants, in 1895 took out a patent for improvement on the machine of the patent in suit, which improvements are embodied in the machine now used by the complainants. This 1895 patent states that it relates to improvements over No. 383,258, the patent in suit, said improvements "being designed with a view to overcoming some of the defects of the machine referred to." What these defects were, Sutton, the complainant, was not called to show. The latter patent discarded the stationary card to which we have referred and substituted a second rotary brush therefor.

The coney industry has led to the adoption by the defendants of the alleged infringing machine, which in its movable, oscillating stretcher bar, follows the general line shown in the Lake, English patent, which, as we have seen by the statements of com-
209 plainants' witness Shaw, was also not accurate or adapted to unhairing seals. Whatever may have been the defects of that machine when applied to the costly experimental work of unhairing seal skins, it is clear to us that its general principles were such that a mechanical adaptation of them so as to successfully deal with the cheap rabbit skins of the coney industry was quite as possible as the adaptation of Sutton's unused seal unhairing machine to the latter industry, and in that adaptation we are clearly of opinion the respondents have not embodied the elements designated in the eighth claim of the Sutton patent. The essential and central feature of respondents' construction—that around which all its mechanism centers—is its movable stretcher bar. Such a reciprocating stretcher bar, actuated by the same general mechanism, was shown in the Lake patent. This reciprocating movement carries the pelt in the respondents' machine from the brush to the shears and it feeds the pelt forward over the stretcher edge as well. Its single reciprocating movement covers approximately a quarter revolution of the power shaft. The three separate mechanisms of Sutton for removing the brush to the stretcher bar, the shears to the same point and feeding the pelt forward are so to speak unified in the respondents' single oscillating motion of the stretcher bar which substantially modifies or effects all three. It is evident that this is not a mere reversal of parts or principles, mere trans-position or substi-

tution, but is in substance the embodiment of a single three-fold effective movement in lieu of the work of three different individual mechanisms. But that is not all. The respondents have found means to unhair pelts by the total omission of the stationary card with its teeth and preparatory work, an essential element of Sutton's eighth claim. The fur and hair are neither straightened, separated or subjected to any preparatory card-work in the respondents' device. They use a repression bar of the same general type shown in the repressing blade of the Covert patent of 1884, and the compression plate of the Lake, English patent of 1881. That the two machines of respondents and complainants both accomplish the same result may be conceded, but identity of result is not the test of
210 infringement. There must in the ordinary patent be identity of means of operation as well; Kokomo Fence Co. *vs.* Kitselman, 103 O. G., 1422. In the means employed by respondent, we find an absence of the specific elements of the claim in suit. The respondents have no fixed stretcher bar; they have no means for intermittently feeding the skin over such a fixed stretcher bar; they have no stationary card above the stretcher bar; they have no movable separating brush below such stretcher bar; and no mechanism whereby a rotary brush is moved upward and forward in front of such stretcher bar. This shows a non-identity of means—and it is fundamental law that the non-use of any specific element of a combination claim or its equivalent avoids infringement; Water-Meter Co. *vs.* Desper, 101 U. S., 332; Weatherhead *vs.* Coupe, 147 U. S., 322; Wright *vs.* Youengling, 155 U. S. 47. The difference between the fixed stretcher bar and the rotary brush of Sutton and the rotary brush and movable stretcher bar of the respondents, is not the mere reversal of relations the words indicate. By that change the two separate movements of both shears and brush to the Sutton stretcher bar and the separate independent mechanical means for accomplishing the two are replaced by the oscillating movement of the stretcher bar. Nor is this all. The upward and forward movement of Sutton's brush is not translated or reversed into an upward and forward movement of respondents' stretcher bar, it is substantially done away with in the rocking of the stretcher bar, and that movement also affects an additional result, viz., the forward feeding of the pelt, which in Sutton was done by independent means and which means he makes an element of his claim. It is therefore apparent that the single reciprocating movement of the stretcher bar which in itself was shown years before in the Lake patent is not a mere mechanical transposition or subterfuge, but embodies the use of substantially different mechanical principles, movements and means in a wholly different way. When these different principles result, as they do in this case, in a doubled
211 working capacity and product, the conclusion that there is a difference between the two machines in substance, as well as form, is apparent.

We deem it proper to say that the decision in the second circuit

involving this patent have been carefully considered. We do not understand that a machine such as is here in question was involved in those cases or has ever been passed upon. If, however, the construction there given this claim be so broad as to cover the respondents' device, we cannot, in view of what we have said above, accede to such view.

Finding as we do that infringement has not been shown the decree of the court is reversed with instructions to dismiss the bill for non-infringement with costs.

(Endorsed:) American Fur Refining Co. *vs.* Cimiotti Unhairing Mach. Co. Opinion of the court by Buffington, J. Filed July 3, 1903.

212 In the United States Circuit Court of Appeals for the Third Circuit, March Term, 1903.

AMERICAN FUR REFINING CO. ET AL., Appellants,
*vs.*
CIMIOTTI UNHAIRING CO. and JOHN W. SUTTON, Appellees. } No. 39.

Appeal from the circuit court of the United States for the district of New Jersey.

This cause came on to be heard on the transcript of record from the circuit court of the United States, for the district of New Jersey, and was argued by counsel.

On consideration whereof, it is now here ordered, adjudged and decreed by this court that the decree of the said circuit court in this cause, be, and the same is hereby reversed with costs.

And it is further ordered that, this cause be remanded to the said circuit court with directions to enter a decree dismissing complainants' bill with costs.

Philadelphia, July 10, 1903.

M. W. ACHESON,
*U. S. Circuit Judge.*

213 In the United States Circuit Court of Appeals for the Third Circuit, March Term, 1903.

AMERICAN FUR REFINING COMPANY, Appellant,
*vs.*
CIMIOTTI UNHAIRING COMPANY ET AL., Appellees. } No. 39.

Appeal from the circuit court of the United States for the district of New Jersey.

And now, to wit, this twenty ninth day of August, A. D. 1903, it is ordered that mandate issue to the said circuit court of the United

States, for the district of New Jersey, in accordance with the opinion and decree of this court in said cause.

GEO. M. DALLAS, *Cir. Judge.*

214 UNITED STATES OF AMERICA, *ss:*

[SEAL.]

The President of the United States of America to the honorable the judges of the circuit court of the United States for the district of New Jersey, Greeting:

Whereas, lately in the circuit court of the United States for the district of New Jersey, before you, or some of you, in a cause between American Fur Refining Company, and Max Mischke, appellant, *vs.* Cimiotti Unhairing Company and John W. Sutton, appellees, wherein the decree of the said circuit court entered in said cause is in the following words, viz.:—

"This cause having duly come on to be heard for final hearing on the 12th day of May, 1902, upon the pleadings and proofs taken and filed herein; now after hearing Louis C. Raegener Esq., of counsel for complainants, and Henry Schreiter Esq., of counsel for the defendants and upon due deliberation, it is ordered, adjudged and decreed that letters patent of the United States No. 383,258, granted May 22, 1888, to John W. Sutton, for a certain new and useful invention and improvement in machines for plucking furs, and referred to in the bill of complaint herein, are good and valid in law as respects the eighth claim thereof.

That the complainant John W. Sutton, was the first, original and sole inventor and discoverer of the said new and useful invention or improvement in machines for plucking furs described and claimed in said letters patent and is the exclusive owner thereof.

That the complainant Cimiotti Unhairing Company, ever since on or about January 1, 1897, has been, and now is the sole and exclusive licensee under the said letters patent No. 383,258 and the inventions and improvements described therein.

That the said defendants, American Fur Refining Company and Max Mischke have infringed upon the said letters patent and upon the eighth claim thereof, and upon the exclusive rights of the complainants to and under the same, by making, constructing and using machines containing and embodying the invention and improvements, shown described and claimed in the eighth claim of said letters patent as charged in the bill of complaint herein. And it is further ordered adjudged and decreed that the complainants Cimiotti Unhairing Company and John W. Sutton, do recover of the defendants American Fur Refining Company, and Max Mischke, the profits, gains and advantages which the said defendants have received or made, or which have arisen or accrued to them from or by reason of their said infringement of the said letters patent by the

manufacture, use or sale of said invention or of machines made according to and employing and containing the said invention, shown and described and claimed in the eighth claim of said letters patent No. 383,258, together with the damages which have accrued to the complainants by reason of the said infringement of the defendants.

And it is further ordered adjudged & decreed that it be referred to —— —— as master at his office, —— or such other place or places as said master may from time to time designate, to ascertain and take and state and report to this court an account of the number of machines for plucking furs, made constructed used or sold by the said defendants, and made according to and employing and containing the said invention of said letters patent; and also all the gains, profits, and advantages which the said defendants have received or made,
215 or which have arisen or accrued to them from or by reason of their said infringement of the said letters patent by the manufacture, use or sale of the said invention or machines made according to and employing and containing the said invention shown described and claimed in the eight claim of said letters patent No. 383,258 together with the damages which have accrued to the complainants by reason of the said infringements by the defendants.

And it is further ordered, adjudged and decreed that the complainants, on such accounting shall have the right to cause an examination of the said defendants and of the officers and directors of the said defendant, American Fur Refining Company, *ore tenus* or otherwise, and also the production of the books, vouchers and documents of said defendants; and that the said defendants and the said officers and directors attend for such purpose before said master from time to time as the said master shall direct.

And it is further ordered, adjudged and decreed that a perpetual injunction shall issue forthwith in this cause against the said defendants, American Fur Refining Company, and Max Mischke, them and each of them, their and each of their officers, agents, attorneys, workmen and servants, and each and every of them, forever enjoining and restraining them as prayed in the bill of complaint herein from directly or indirectly making, constructing, using, vending, delivering, working or putting into practice, operation or use, or in any way counterfeiting or using the invention of the eighth claim of U. S. letters patent No. 383,258 granted May 22 1888, to John W. Sutton, or any machine made in accordance therewith or like or similar to the machine heretofore constructed, used or operated by the said defendants.

And it is further ordered, adjudged and decreed that the complainants Cimiotti Unhairing Company and John W. Sutton do have and recover from the defendants American Fur Refining Company and Max Mischke, their costs charges and disbursements in this suit to be taxed by the clerk of this court, as by the inspection of the transcript of the record of the said circuit court, which was brought into the United States circuit court of appeals for the third

circuit by virtue of an appeal, agreeably to the act of Congress, in such case made and provided, fully and at large appears.

216 And whereas, in the present term of March, in the year of our Lord one thousand nine hundred and three, the said cause came on to be heard before the said United States circuit court of appeals on the said transcript of record, and was argued by counsel:

On consideration whereof, it is now here ordered, adjudged and decreed by this court that the decree of the said circuit court in this cause, be and the same is hereby reversed with costs, and that the said respondents, American Fur Refining Company and Max Mischke, recover against the said complainants, Cimiotti Unhairing Company and John W. Sutton, thirty nine dollars for their costs herein expended and have execution therefor.

And it is further ordered that this cause be remanded to the said circuit court with directions to enter a decree dismissing complainants' bill with costs.

Philadelphia, July 10, 1903.

You, therefore, are hereby commanded that such execution and further proceedings be had in said cause, in conformity with the opinion and decree of this court as according to right and justice, and the laws of the United States, ought to be had, the said appeal notwithstanding.

Witness, the Honorable Melville W. Fuller, Chief Justice of the Supreme Court of the United States, at Philadelphia, the first day of September, in the year of our Lord one thousand nine hundred and three.

WM. H. MERRICK,
*Clerk of the U. S. Circuit Court of Appeals, Third Circuit.*

*Costs of Appellees.*

| | |
|---|---|
| Clerk | $19.00 |
| Attorney | 20.00 |
| | $39.00 |

[Endorsed:] U. S. circuit of appeals, third circuit. No. 39, March term, 1903. American Fur Refining Co. *et al.* appellants *vs.* Cimiotti Unhairing Co. *et al.* Mandate.

217 United States Circuit Court of Appeals, Third Circuit, March Term, 1903.

*Costs of American Fur Refining Co. in No. 39.*

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| 19–, — term. Docketing cause and filing record, $5.00; appearance, .25; filing precipe and receipt, 50; filing papers, $1.00 | 6 75 |
| Filing briefs, $5.00; argument, .20; judgment, $1.00; filing same, .25; recording, .40; mandate, $5.00; attorney's docket fee, $20.00; costs and copy, .40 | 32 25 |
| | 39 00 |

Fee Book 3, page 224.

Test:

WM. H. MERRICK,
*Clerk Circuit Court of Appeals, 3d Circuit.*

218 UNITED STATES OF AMERICA, *ss:*

I, William H. Merrick, clerk of the United States circuit court of appeals for the third circuit, do hereby certify the foregoing pages from one to two hundred and seventeen inclusive, to contain a full, true, complete and faithful copy of the original transcript of record and proceedings in the case of American Fur Refining Company and Max Mischke, appellants, and, Cimiotti Unhairing Company and John W. Sutton, appellees, on file and now remaining among the records of the said court, in my office.

In testimony whereof, I have hereunto subscribed my name and affixed the seal of the said court, at Philadelphia, this twelfth day of February, in the year of our Lord one thousand nine hundred and four and of the Independence of the United States the one hundred and twenty-eighth.

[Seal United States Circuit Court of Appeals, Third Circuit.]

WM. H. MERRICK,
*Clerk U. S. Circuit Court of Appeals, Third Circuit.*

219 UNITED STATES OF AMERICA, *ss:*

[Seal of the Supreme Court of the United States.]

The President of the United States of America to the honorable the judges of the United States circuit court of appeals for the third circuit, Greeting:

Being informed that there is now pending before you a suit in which American Fur Refining Company and Max Mischke are appellants and Cimiotti Unhairing Company and John W. Sutton are

appellees, which suit was removed into the said circuit court of appeals by virtue of an appeal from the circuit court of the United States for the district of New Jersey, and we, being willing for certain reasons that the said cause and the record and proceedings therein should be certified by the said circuit court of appeals and removed
220 into the Supreme Court of the United States, do hereby command you that you send without delay to the said Supreme Court, as aforesaid, the record and proceedings in said cause, so that the said Supreme Court may act thereon as of right and according to law ought to be done.

Witness the Honorable Melville W. Fuller, Chief Justice of the United States, the second day of March, in the year of our Lord one thousand nine hundred and four.

JAMES H. McKENNEY,
*Clerk of the Supreme Court of the United States.*

221 [Endorsed:] File No. 19,241. Supreme Court of the United States. No. 590, October term, 1903. Cimiotti Unhairing Co. & John W. Sutton *vs.* American Fur Refining Co. & Max Mischke. Writ of certiorari.

222 United States Circuit Court of Appeals for the Third Circuit.

AMERICAN FUR REFINING COMPANY and MAX MISCHKE
*vs.*
CIMIOTTI UNHAIRING CO. and JOHN W. SUTTON.

*Stipulation.*

A writ of certiorari having been issued by the Supreme Court of the United States in the above-entitled cause, directed to the United States circuit court of appeals for the third circuit, it is stipulated between the solicitors and counsels for the respective parties to said suit, that the certified transcript of the record and proceedings therein heretofore filed in the Supreme Court of the United States with the petition for writ of certiorari in said cause on February 23, 1904, be the return of the clerk of this court to the said writ of certiorari.

Dated New York, N. Y. March 3rd, 1904.

SCHREITER & MATHEWS,
HENRY SCHREITER,
*Solicitors and Counsel for American Fur Refining Company and Max Mischke.*
JOHN W. GRIGGS,
LOUIS C. RAEGENER,
*Solicitors and Counsel for Cimiotti Unhairing Co. and John W. Sutton.*

223 [Endorsed:] United States circuit court of appeals, for the third circuit. American Fur Refining Company and Max Mischke *vs.* Cimiotti Unhairing Co. and John W. Sutton. Certified copy stipulation. Louis C. Raegener, sol'r for compl'ts, 141 Broadway, New York. Filed March 8. 1904 Wm. H. Merrick, clerk.

224 UNITED STATES OF AMERICA, *sct:*

I, William H. Merrick, clerk of the United States circuit court of appeals, for the third circuit, do hereby certify the foregoing to be a true and faithful copy of the original by virtue of the foregoing writ of cert-orari and in obedience thereto do hereby certify to the Supreme Court of the United States the consent of the counsel for the respective parties thereto annexed as my return to the said writ on file, and now remaining among the records of the said court, in my office.

In testimony whereof, I have hereunto subscribed my name and affixed the seal of the said court, at Philadelphia, this eighth day of March, in the year of our Lord one thousand nine hundred and four and of the Independence of the United States the one hundred and twenty-eighth.

Seal United States Circuit Court of Appeals, Third Circuit.

WM. H. MERRICK,
*Clerk U. S. Circuit Court of Appeals, Third Circuit.*

225 [Endorsed:] No. —. —— term, 189–. United States circuit court of appeals, third circuit. Cimiotti Unhairing Co. *et al. v.* American Fur Refining Co. *et al.* Certified copy. Stipulation of counsel as to return of writ.

226 [Endorsed:] File No. 19,241. Supreme Court U. S. October term, 1904. Term No. 192. Cimiotti Unhairing Co. *et al.*, petitioners, *vs.* American Fur Refining Co. *et al.* Writ of certiorari and return. Filed Mar. 9″, 1904.